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HOEFFTCKE'S EXTENSION APPLIANCES.

AMBULATORY TREATMENT OF FRACTURE OF THE LIMBS, TUBERCULOUS AND ARTHRITIC DISEASE OF JOINTS.

By C. A. HOEFFTCKE,
21, Woodstock Street, Oxford Street, London, W.
By Appointment to several Hospitals and Societies.

(*Continued from Feb. 24th.*)

Miss D. V. (æt. 10). This T. B. knee case—which I described in my previous report—has progressed well, and the knee, which was ankylosed and flexed at an angle of 102 degrees on the 29th December, 1911 (see Fig. 1), was straight on the 15th March, 1912; but it has given me a great amount of trouble and anxiety, which was due to the condyle of the tibia being embedded in the posterior half of the articular surface of the femur. The anterior half of the condyle of the femur is still intact, but the posterior half is absorbed to well over the epiphyseal line—in fact, there is a cavity in the shaft itself. To straighten the last 10 degrees of flexion was too painful to be attempted without an anæsthetic, and the child was therefore taken in hospital on the 1st March. The foot-piece and ankle-strap were adjusted so as to allow for the greatest possible extension, and the last 10 degrees straightened out with slow movements under an anæsthetic by means of the steel bar traction. In that way the knee was a little hyper-extended. Unfortunately the slotted arches on the side which were fastened in the second hole from the top were not adjusted in the last hole, and when the child woke up in the night she undid the straps of the steel bar, which caused the knee to flex again to the extent of about 5 degrees. As it was not advisable to give another anæsthetic, these 5 degrees of flexion were straightened out gradually, and the child was sent home on March 7th. On March 15th the leg was quite straight when in the appliance (see Fig. 2), but when the splint is taken off it still flexes a little (see Fig. 3).

I must thank the house surgeon and sister and nurses of the ward for their patience and the great help which they have given me in this case, as it was really the worst one ever sent to me by any surgeon.

There is a good deal of lateral displacement, which is shown in the anterior-posterior view (Fig. 4). If that cannot be corrected, no doubt the best thing will be to try and obtain a stiff joint.

The leg swelled at the back of the knee-joint after the straightening process, but within 14 days the swelling was down and the size of the joint quite normal again. This good result was no doubt due to the continuous extension on the ankle with the tuber ischia as counter pressure point. The child can now walk without a stick in the house, and uses one stick when out of doors.

I shall again report progress of this case in the latter part of this year.

FIG. 1.—Ankylosed knee, flexed at 102 degrees, Dec. 29th, 1911. Hoefftcke's instrument applied.

FIG. 2.—Knee straight, showing Hoefftcke's instrument with slotted arches in last hole. March 15th, 1912.

FIG. 3.—Knee slightly flexed when splint is taken off.

FIG. 4.—Anterior posterior view, showing lateral displacement and destruction of condyles.

The same as with tubercular knee-joints, my appliance ensures that no weight is transmitted through the hip-joint, the weight of the body is taken off the hip-joint so that friction between head of femur and acetabulum is prevented—a travelling acetabulum is therefore out of the question.

Extension in the hip-joint is produced the same as in the knee apparatus by means of the extension on the ankle and the tuber ischia as counter-extension.

In case the head of the femur is partly absorbed the object of the extension is to prevent the bones from displacement upwards, and the head or what is left of it can be held in its proper position in the acetabulum. When friction is prevented between the bones and they are held in good position, they will tend to resume their natural shape or round off, as the case may be.

The object of the appliance in tubercular hip cases is to permit the patients to walk about without crutches or patten on the other foot, and in certain cases the joint can be moved in all directions while still maintaining extension.

The great advantage of using my appliance instead of Thomas's splint or a box must be obvious to every surgeon, as walking in my splint prevents the leg from atrophying, and as the patient is enabled to be about the general health keeps up much better than with the recumbent treatment.

The tubercular hip case illustrated in skiagram Figs. 5 and 6 was one of active tubercular hip disease, treated with my extension splint for two years. My appliance was put on 17th June, 1909, and taken off 20th July, 1911. The patient—a very lively boy—walked about the same as other boys of his age without any pain or discomfort while wearing my appliance. There is no restriction in either flexion or extension, abduction or adduction of the hip-joint. The boy has now walked on the leg without the appliance since July last, and there is no recurrence of the disease up to now.

The head of the femur, which was partly absorbed, has rounded off quite nicely, although it is a little flattened on the top. There is no shortening and the little boy walks and runs about without any limp whatever—indeed, an ideal result.

FIG. 5.

Tubercular hip case. Hoefftcke's extension splint applied 17th June, 1909. Head partly absorbed.

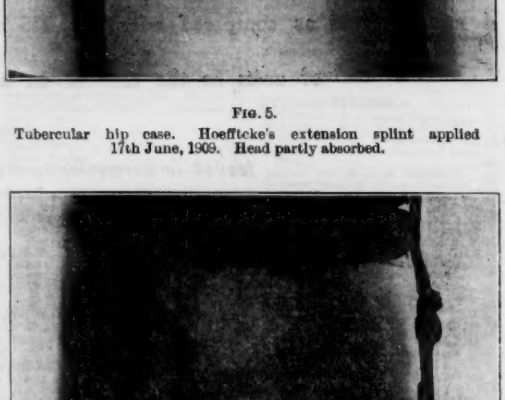

FIG 6.

Tubercular hip case. Head nicely rounded off, but a little flattened on the top; no restriction in movements. July 20th, 1911.

To be continued 20th April.

The Milroy Lectures

ON

PARATYPHOID FEVER AND MEAT POISONING.

Delivered before the Royal College of Physicians of London

BY F. A. BAINBRIDGE, M.A., M.D. CANTAB., F.R.C.P. LOND., D.P.H.,

PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF DURHAM.

LECTURE III.[1]

Delivered on March 7th.

I.—B. SUIPESTIFER.

MR. PRESIDENT AND GENTLEMEN,—The following account is based on 40 outbreaks of meat poisoning in which B. suipestifer was obtained. In 28 of these the bacillus was obtained from the patients, twice from the blood, eight times from the spleen and other viscera, and in the remainder from the stools. In 21 cases it was obtained from the meat which was regarded as the cause of the outbreak. In 26 cases the serum of the patients gave a positive reaction for the bacillus which was isolated. In all these outbreaks the illness was definitely attributed to the consumption of some particular article of food. According to the evidence the illness was confined to those who ate the sample of meat, although not every one who partook of it was ill.

There are also one or two instances in which acute gastro-enteritis has followed directly on the accidental ingestion by the mouth of strains of so-called B. typhi murium which were probably identical with B. suipestifer. Shibayama described a case in which a family mixed a culture of B. typhi murium with food for the purpose of destroying mice, and subsequently prepared their own supper in the same bowl. On the following day they were all ill with symptoms of acute gastro-enteritis. The bacillus was recovered from their stools and their serum gave a positive reaction for it. Similar cases of infection have been recorded by Mayer and by Trommsdorf.

DISTRIBUTION OF B. SUIPESTIFER.

(*a*) *England.*

The bacillus has been isolated from the patients in at least six outbreaks of meat poisoning in this country; in some of these it was also obtained from the meat which caused the illness. It has also been found by Murray, Williams, and Rundle in seven cases which clinically were summer diarrhœa, and once or twice by Morgan in similar cases.

Apart from these cases, B. suipestifer has rarely, if ever, been met with in man. Nor has it been isolated either from food of various kinds or from the alimentary canal of pigs. (Savage, Bainbridge.) The bacillus is not infrequently obtained, however, from guinea-pigs (Petrie and O'Brien), and is occasionally present in mice (Bainbridge, Savage). In these animals it occurs both in health and as a cause of epizootic disease.

(*b*) *Germany.*

There is a widespread belief among German writers, of whom Hübener is the most prominent, that it has a wide distribution and is commonly present in the alimentary canal of healthy men and animals and also in food which has been subsequently eaten without causing disease. Although these writers describe the bacilli which they find as "paratyphoid" bacilli the examination of some of the strains by the absorption method makes it clear that in many, if not in all, cases they were really dealing with B. suipestifer. It has further been shown by Uhlenhuth and by Seiffert that B. suipestifer can be obtained from the fæces in from 5 to 8 per cent. of healthy pigs. An active controversy has taken place in Germany between the upholders of this view, and those who find the organism almost entirely confined in its distribution to outbreaks of disease. Without going into the details of this controversy it would appear that Hübener's view has been largely discredited.

1. *Man.*—It has been shown, in the first place, that the occurrence of B. suspestifer in healthy men is practically confined to certain areas of Germany and is not universal. Even in those districts in which its presence has been demonstrated the bacilli have been obtained in very scanty numbers from any given person, and often only once from the same individual even after repeated examination of the stools. In several districts in Germany careful and extensive examination of human excreta has failed to demonstrate the presence of the bacillus except in association with meat poisoning. Among such investigations may be mentioned those of Aumann, Sobernheim, and Seiffert. Aumann concludes that the bacillus is not more widely distributed apart from disease than other organisms such as B. typhosus or the diphtheria bacillus whose pathogenic power is undoubted.

2. *Food.*—Secondly, the earlier statement of Mühlens, Dahm, and Fürst as to the frequent presence of B. suipestifer in food has not been confirmed. The authors fed mice on a large number of samples of uncooked meat (chiefly ham and goose), which appeared healthy and were subsequently eaten by men without ill effects. Many of the mice died and B. suipestifer was obtained from their organs, although it could not be isolated directly from the meat. The conclusion was drawn by these writers that B. suipestifer was often present in sound meat and that it had therefore no causal relation to meat poisoning. The fallacious character of these observations was pointed out by Holth and by Zwick and Weichel. They found that the high mortality among the mice was chiefly due to their being fed upon an unaccustomed diet, which caused enteritis. A contributory factor was the partial starvation of the animals owing to their dislike of the food. They also ascertained that B. suipestifer was a common inhabitant of the mouse's alimentary canal, and was frequently present in the tissues of mice whatever the cause of death. Apparently the effect of this strange diet so modified the conditions of the alimentary canal of mice that B. suipestifer was enabled to make its way from the intestine into the general circulation, and there was no evidence that the bacilli were introduced by the food. Aumann has also carried out a very extensive investigation of various foods, including meat, sausages, milk, fish, bread, and vegetables, involving the examination of 707 samples. Only 5 of these yielded bacilli of the suipestifer type, and in all of them the food had given rise to disease in man.

3. *Animals.*—Thirdly, the bulk of evidence goes to show that B. suipestifer is not widely distributed among domestic animals. Two hundred samples of fæces from healthy pigs, cattle, sheep, and calves were examined by Aumann, who did not find it on a single occasion. Müller, Edenhuyzen, Portet, and Sobernheim were all almost equally unsuccessful.

It is probable, therefore, that this organism is not very widely distributed either in this country or in Germany, and that its occurrence, either in man, in food, or in the domestic animals, is infrequent except in association with meat poisoning. An exception to this statement may perhaps be made as regards pigs; although the evidence is not unanimous it undoubtedly occurs from time to time in the pig and is relatively frequent in this as compared with other animals. It is also commonly present in the intestine both of mice and of guinea-pigs.

The evidence as to the distribution of B. suipestifer may be summarised as follows:—1. Its normal habitat is the alimentary canal of mice, guinea-pigs, and of pigs; it is rarely obtained from other domestic animals. 2. In meat poisoning in man it has been frequently isolated from patients and from meat. 3. Apart from such outbreaks, it is rarely obtained either from the human alimentary canal or from food.

THE RELATION OF B. SUIPESTIFER TO MEAT POISONING.

The foregoing facts as to the distribution of B. suipestifer furnish good grounds for regarding it as a cause of meat poisoning. Confirmatory evidence is afforded by the fact that the patients not only excrete the bacillus but elaborate agglutinins for it. While admitting the frequent association of this bacillus with outbreaks of meat poisoning some have supposed, however, that it is not the true cause of the disease, but is merely a secondary invader. The view has been put forward that meat poisoning (like swine fever) is

[1] Lectures I. and II. were published in THE LANCET on March 16th (p. 705) and 23rd (p. 771), 1912, respectively.

caused by a filter passer. But attempts to demonstrate the existence of a filter passer in cases of meat poisoning have been unsuccessful. It is, further, necessary to assume, if this view be correct, that B. suipestifer occurs very often either in the human intestine or in food; and this assumption is not in accordance with the facts.

It may be fairly concluded, therefore, that B. suipestifer causes meat poisoning. This conclusion is not invalidated by the observation that the bacillus may occasionally be ingested in small numbers by man without producing evil effects. This happens in the case of admittedly pathogenic organisms; it is known, for instance, that B. typhosus is occasionally taken into the body and excreted without giving rise to clinical symptoms of disease. Indeed, the capacity of almost every organism to produce an infection must always depend in part upon the number of bacilli entering the body and upon the susceptibility of the individual.

EPIDEMIOLOGY.

One of the most striking features of outbreaks due to B. suipestifer is the frequency with which the meat to which the illness was attributed was derived from the pig. The analysis of 28 outbreaks shows the following to be the sources of the food: pig, 16 cases; cow, 9 cases; horse, 3 cases. In eight cases the animal was ill at the time when it was slaughtered, and in several, probably all, of these cases it was suffering from infection with B. suipestifer. In the other outbreaks there is no evidence that the animals whose flesh was eaten were diseased, and in several instances they are stated to have been perfectly healthy when slaughtered.

Meat may become infected with this bacillus in one of two ways. On the one hand, the organisms may reach the tissues and the muscles during life as a result of a septicæmia. The outbreak at Aertrycke, for example, followed the consumption of meat from a sick calf, and B. suipestifer was isolated from its bone marow, which clearly indicates the existence of a blood infection during life. On the other hand, post-mortem contamination of the meat may follow careless handling in the slaughter-house: we may probably regard as examples of this mode of infection cases of meat poisoning in which one part of the animal (e.g., a leg) causes disease, whereas the remainder of the carcase is eaten without ill effect.

Illness in man caused by meat infected *intra vitam* is more serious but less common than that due to the post-mortem contamination of meat. It is less frequent because the routine inspection of meat and the laws against emergency slaughter minimise the probability of the consumption of food from a diseased animal. It is more serious because the bacilli are liable to occur throughout the substance of the meat; and it has been shown, more than once, that the ordinary process of cooking does not necessarily kill the bacilli in the centre of a joint of average size or even in a sausage.

In the pig the most important cause of intravital infection with B. suipestifer is swine fever, in which it makes its way into the blood. And Mayer and Tiberti have noticed the simultaneous prevalence of swine fever and of meat poisoning. No such relationship, however, has been observed in this country.

POST-MORTEM CONTAMINATION.

In two only of the outbreaks caused by food derived from the pig was the animal diseased; in most, if not all, of the others the meat must have been contaminated after the animal was killed. It is not difficult to understand the relative frequency of post-mortem contamination in pigs as compared with other animals. They are the only domestic animals used for food in whose intestine B. suipestifer occurs with any frequency. The contamination of the meat with the contents of the pig's intestine through careless handling in the slaughter-house must therefore offer opportunities for its occasional infection with this bacillus. Another possible source of contamination is mice, which not only at times excrete B. suipestifer, but may also be a means of conveying infected (fæcal) material directly to meat in the slaughter-house or elsewhere.

These modes of contamination will affect in the first instance only the superficial layers of the meat, and unless this has been kept long enough to allow of extensive multiplication and spread of the bacteria cooking will destroy the organisms. This point is of considerable importance, since if meat is kept for some days before being cooked and the organisms have penetrated deeply into the meat, which is an admirable culture medium, they are more likely to escape destruction when the meat is eventually cooked. It has been noticed, in fact, that meat infected with B. suipestifer, which was harmless when cooked and eaten at once, caused illness when the remainder was cooked and eaten two or three days later. This is possibly the explanation of the fact that in this country pork pies and sausages have been responsible for many of the outbreaks of meat poisoning caused by B. suipestifer. But the processes involved in the preparation of these foods further tend to a uniform distribution of the bacilli, and therefore increase their chance of escaping destruction by cooking.

The difficulty of tracing the infection of the meat to its source is often very great, as is shown in a report by Pick and Thomson on a recent outbreak at Chesterfield. The illness was caused by the consumption of pork pies, and B. suipestifer was obtained from the pies and the patients. The pies appeared good, and the conditions of manufacture were excellent; but the premises used for slaughtering and gut-cleaning and those used for preparing the pies and jelly were not completely separated. The only opportunities for the contamination of the food were the infection of the jelly, either while being prepared or when placed to cool. The authors believe that the jelly was contaminated when it was cooling; during that time it was placed in a passage joining the slaughter-houses to the premises in which the pies were made. They trace the infection of the jelly to contamination by hand or by dust.

We may conclude that post-mortem contamination of meat with the contents of the pig's intestine is probably the usual cause, although the actual method of infection in any given case is often difficult to ascertain. The possibility that mice and flies may contaminate meat cannot be excluded, but definite evidence on this point is lacking. The infection of meat by human carriers of B. suipestifer is unknown.

II.—B. ENTERITIDIS (GAERTNER).

Gaertner's bacillus has always been accepted as a cause of meat poisoning. This belief is fully confirmed by more recent evidence as to its distribution and by two cases of infection which are almost comparable with laboratory experiments. In one instance sausages had given rise to symptoms of meat poisoning. The inspector of the slaughter-house did not believe that the illness was caused by the sausages, and in order to demonstrate their harmless nature he consumed a considerable quantity of them. Within a few hours he was seized with acute gastro-enteritis and died; B. enteritidis was isolated from his organs and from the sausage. In a second case a cow was injected intravenously with B. enteritidis (Gaertner) which was isolated from a recent epidemic of meat poisoning and was killed 20 minutes later. A portion of the meat was kept for three days at room temperature and was then found to contain the bacillus in large numbers. This meat was deliberately eaten by 53 people, of whom 15 became ill; fortunately no deaths occurred.

DISTRIBUTION.

The difficulties which have been discussed with regard to the distribution of B. suipestifer hardly arise in the cases of B. enteritidis (Gaertner), since it can be readily identified by its agglutination reactions. It occurs very rarely either in the excreta of healthy men or in those of individuals suffering from diseases other than meat poisoning. In this country Savage examined the fæces of 58 persons, some healthy, others suffering from enteric fever. From one of the latter B. enteritidis (Gaertner) was isolated; the remaining 57 cases were negative. It was also isolated on four occasions by Morgan in the course of his inquiry into the causation of summer diarrhœa, in which over 300 samples of fæces were examined. Quite recently Dean has obtained it from the gall-bladder and from the stools of a patient suffering from gall-stones. With the exception of these cases it has not been obtained in man apart from meat poisoning; and the investigation by Bainbridge and O'Brien of the organisms isolated from the fæces of about 300 enteric convalescents yielded a completely negative result. The careful work of Aumann indicates that B. enteritidis (Gaertner) is equally infrequent in Germany. He found it on 18 occasions during the examination of 765 samples of human excreta. In many of these the presence of the bacilli was associated with the symptoms of meat poisoning,

It cannot be regarded, therefore, as a normal inhabitant of the healthy human alimentary canal.

Nor is it present at all frequently either in the excreta or tissues of domestic animals or in food. Müller showed, for instance, that although pyæmia and septicæmia are quite common in domestic animals these conditions are hardly ever caused by B. enteritidis (Gaertner). There is, indeed, little or no evidence that this organism passes a saprophytic existence even in the domestic animals, since, as a rule, it has been found only in animals definitely suffering from disease. A large proportion of the animals were either calves or cows, and in many of them the illness of the animals, as far as could be observed, was caused by it. The distribution of the bacillus in other than domestic animals is very imperfectly known. There seems no doubt, however, that it may give rise to epizootics in guinea-pigs (Bainbridge and O'Brien) and in rats and rabbits (Bainbridge, Boycott, Durham). It has occasionally been isolated from mice, and is also a very frequent inhabitant of the alimentary canal of healthy grey rats, being met with whenever any large body of rats is examined bacteriologically. According to Uhlenhuth, indeed, B. enteritidis (Gaertner) is normally and constantly present in rats. It may well be that the rat's intestine is the true home of this organism, and that it reaches the alimentary canal of cattle and other domestic animals through the contamination of their food or bedding by rats. The fact that when B. enteritidis (Gaertner) is found in the domestic animals the latter are usually ill, and that it is seldom isolated from healthy cattle lends colour to this hypothesis, the more so as the bacillus is distinctly pathogenic, at least for calves. But the matter needs fuller investigation.

These points may be summarised as follows: 1. B. enteritidis (Gaertner) is frequently present in the alimentary canal of grey rats. 2. It is seldom isolated from the alimentary canal of healthy men or of the domestic animals or from food.

Occurrence in Meat Poisoning.

The total number of outbreaks of meat poisoning in man caused by B. enteritidis (Gaertner) is probably very large. There are at least 30 in which it has been definitely isolated either from patients or from the infected meat. Many of the strains isolated by earlier workers are still in existence, and their identity with the original strain of Gaertner has been confirmed in recent years. In 21 of these the organism was isolated from the patients—twice from the blood, 19 times from the spleen or other organs or from the excreta. In 22 it was isolated from the meat which caused the illness. In 9 cases the patient's serum gave a positive reaction for the bacillus.

Epidemiology.

It is impossible to deal fully with the epidemiology of these outbreaks, but attention may be called to one or two important points. I have records of 24 outbreaks in which the origin of the meat causing the outbreak and the condition of the animals from which the meat was derived are definitely stated. In 16 of these the meat was derived from cattle, in 4 from horses, and in 4 from pigs. In 16 instances (cow 13, horse 3) the animal whose flesh was consumed was either stated to be ill or was slaughtered in emergency; the latter may be regarded as tantamount to evidence of illness. The more frequent forms of disease among the cattle were either fever after calving or calf diarrhœa. In one or two cases definite evidence of the existence of septicæmia was afforded by the isolation of B. enteritidis (Gaertner) from the bone marrow of the animals. Intravital infection of the meat seems, therefore, to be more common than post-mortem contamination. In this respect outbreaks of meat poisoning caused by B. enteritidis (Gaertner) differ from those caused by B. suipestifer, since in the latter the meat is generally infected post mortem. This difference may, perhaps, account for the higher mortality (already referred to) observed in outbreaks caused by B. enteritidis (Gaertner). It is not unreasonable to expect that, owing to the more uniform distribution of the organisms throughout the meat, and therefore to increased opportunities for multiplication in intravital infection, the number of ingested bacilli would be greater than in a superficial post-mortem infection of the meat. It may be, however, that B. enteritidis is always more pathogenic for man than B. suipestifer. It is clear that the most usual source of infection is meat derived from diseased animals, but other possible modes of infection of the meat may be briefly considered. They include the post-mortem infection of the meat either by careless handling in the slaughter-house or by human carriers of B. enteritidis (Gaertner) or by animal carriers. It seems unlikely that meat is often contaminated post mortem with B. enteritidis (Gaertner) through being allowed to come into contact with animal excreta containing this organism, since it is so rarely present in healthy domestic animals, but this possibility cannot be entirely excluded.

Human Carriers.

Nor is there any evidence that illness has ever been caused by meat infected by human carriers of B. enteritidis (Gaertner). Gaertner and others have recorded secondary cases of illness arising in the course of an epidemic of meat poisoning, and apparently caused by contact with patients who had eaten the infected meat. These contact cases occurred among people who had not eaten the meat, but were associated with the patients originally attacked. But infection of this kind has been met with only during the course of the epidemic; and the infection of meat by convalescents or by chronic carrier cases has never been observed. The existence of human carriers of B. enteritidis (Gaertner) is, in fact, practically unknown at present, the only definite instance being that recently described by Dean. In a case of suppurative cholecystitis due to gall-stones he obtained B. enteritidis (Gaertner) from the bile and from the gall-stones, and also from the stools one week and again three months after the operation. The patient's serum agglutinated this bacillus at a dilution of 1 in 40. There seems no reason for supposing that this patient had ever been the source of any infection in other people. A case of this kind undoubtedly indicates the possibility that infection by B. enteritidis (Gaertner) may take place through human agency as well as from meat; but such an event has not been observed.

Animal Carriers.

The occurrence of B. enteritidis (Gaertner) in healthy rats, and to a less extent in mice, and the occasional epizootics observed in these animals raise the question as to how far they are responsible for the post-mortem contamination of meat. Their frequent presence in slaughter-houses and places where food is stored seems to offer opportunities for infection of this kind. No definite proof of such infection has as yet been brought forward, possibly because it has not been carefully sought for. We have seen, however, that the rat is an important reservoir for this bacillus; and it ought to be taken seriously into consideration as a factor in the infection of meat. It is not known with certainty, however, that the strains of B. enteritidis (Gaertner) occurring in the rat are pathogenic for man, although there is a strong presumption that this is the case. Boycott has made some observations on the relative pathogenicity of strains of this bacillus isolated from animals of one species for animals of the same or of another species. He found, on the one hand, that a strain of B. enteritidis (Gaertner) isolated in the course of an epizootic among rats was highly pathogenic for rats, but only slightly so for guinea-pigs; on the other hand, a strain of the same organism isolated during an epizootic among guinea-pigs was extremely pathogenic for guinea-pigs, but much less so for rats. He is disposed, therefore, to regard the strain of B. enteritidis (Gaertner) which occurs in a given animal species as possessing more or less specialised pathogenic power for that species. This observation is clearly of extreme importance, but it does not follow that man is insusceptible to organisms of animal origin—indeed, it is certain that he is in some cases susceptible to such organisms. The variable pathogenicity of a given organism for different lower animals has very little bearing on its possible pathogenicity for man. The increased pathogenicity for rats of the organism isolated during an epizootic among rats may well be a specialised effect resulting from the repeated passage at short intervals through animals of the same species. In this connexion it may well be mentioned that the study of epizootics in the lower animals caused by B. enteritidis (Gaertner) seems to show the mode of the spread of infection in them differs from that in man.[2]

Although the mortality in such epizootics is extremely high, the way in which infection spreads is not clear; the organism isolated from the animals is often intensely virulent

[2] This is true also as regards B. suipestifer.

for healthy animals when injected intraperitoneally, but hardly at all pathogenic when given by the mouth. In one such epizootic occurring in guinea-pigs B. enteritidis was isolated from the animals which died. One cubic centimetre of a 24-hour broth culture when given with food failed to kill healthy guinea-pigs, whereas 1/10000 c.c. of the same culture given intraperitoneally caused death within a week. It is difficult to believe, therefore, that in these cases infections spread by way of the alimentary canal, although no alternative mode of infection has yet been demonstrated. On the contrary, in epidemics in man caused by B. enteritidis (Gaertner) infection appears invariably to take place through food.

Further, bacterial viruses have been extensively employed during the last few years for the destruction of rats; many of the viruses are either pure cultures of B. enteritidis (Gaertner) or consist of foodstuff containing this bacillus. Handson and Williams have reported an outbreak of acute gastro-enteritis which they regard as caused by food which had been infected by one of the viruses. No *direct* evidence of such infection was obtained, but the epidemic occurred among persons who took their meals in the room in which the virus had been placed, the presumption being that infected animals (mice) had contaminated the food. Outbreaks of disease in man traceable to infection by a virus are, however, very infrequent, although the distribution of the viruses by unskilled persons must almost inevitably expose those who handle them to some risk of infection. The actual mode of contamination post mortem is therefore very difficult to demonstrate in any given case, although it undoubtedly occurs from time to time; animal carriers are probably the most important factor.

Finally, reference must be made to milk as a cause of meat poisoning (using this term in the broad sense already indicated). An outbreak recently occurred in which more than 100 persons were almost simultaneously affected. The symptoms were those of acute gastro-enteritis and in some cases were very severe, although no deaths occurred. The illness was confined to those who drank the milk from a cow which had recently calved and was ill at the time of the outbreak; it died a few days later. Gaertner's bacillus was twice isolated directly from the milk and also from the patients. There was a strong presumption that the cow was suffering from infection with this bacillus which reached the milk either through the mammary gland or from the animal's excreta. This outbreak is unique in being, so far as I know, the only instance in which B. enteritidis (Gaertner) has ever been isolated from cow's milk.

The main facts regarding meat poisoning may be summarised as follows:—

1. B. suipestifer and B. enteritidis (Gaertner) are rarely found in the healthy human alimentary canal. Their usual habitat is the intestine of certain of the lower animals; B. suipestifer occurs chiefly in pigs and at times in mice, whereas B. enteritidis (Gaertner) is found frequently in rats, occasionally in cattle, and rarely in other animals.

2. In outbreaks of meat poisoning caused by B. suipestifer the meat has usually become infected after death; in the majority of cases it is derived from pigs. Intravital infection also occurs.

3. In outbreaks caused by Gaertner's bacillus the meat has frequently been obtained from animals which were ill when slaughtered. In some cases the contamination of the meat doubtless occurs after death. In 16 out of 24 outbreaks the meat was derived from cattle.

4. There is but little evidence that ptomaines play any important part in meat poisoning; the majority of the outbreaks are due to meat infected either with Gaertner's bacillus or with B. suipestifer.

OTHER DEFINITIONS OF PARATYPHOID FEVER.

We may now consider two other definitions of paratyphoid fever—namely, that accepted in Germany and that recently suggested by Firth.

1. At the present time the term is used by German writers in a sense widely different from that in which it has been employed in these lectures. It is applied to all forms of disease in man which are associated with the presence of any member of the Salmonella group (with the exception of B. enteritidis (Gaertner)). Some workers even describe the illness caused by B. enteritidis (Gaertner) as "Gaertner paratyphus." Those who accept this definition entirely ignore the varying nature of the clinical symptoms which may be present, and describe as paratyphoid fever, on the one hand, an acute outbreak of acute gastro-enteritis obviously caused by the consumption of infected meat, and, on the other hand, an illness not caused by food and clinically indistinguishable from enteric fever.

This definition, therefore, is based solely on bacteriological grounds, no account being taken of the clinical or epidemiological characters of the illness with which the bacilli are associated. The fundamental fact underlying this conception of paratyphoid fever is that German writers do not recognise the distinction between B. paratyphosus (B) and B. suipestifer. They have made practically no use, certainly no systematic use, of either the absorption or the complement deviation methods which are essential for the identification of these two organisms. Consequently they use the term "paratyphoid" bacillus to describe organisms which can be readily shown to be either B. paratyphosus (B) or B. suipestifer.

Since they do not admit the distinction between these two bacilli, and do not use the methods necessary for that purpose, German writers have naturally failed to notice that they have a very different distribution in nature and give rise to dissimilar clinical symptoms. These writers, in point of fact, include under the term "paratyphoid" bacillus two organisms, and under the term paratyphoid fever two diseases. The unsatisfactory nature of this definition has been partially admitted by some German workers. Hübener, for instance, describes two forms of paratyphoid fever—one caused by the consumption of meat, and one not so caused. But this classification is very inadequate, and the foregoing definition seems to have no advantages and many drawbacks. It has tended to obscure the whole subject, and might with advantage be abandoned.

[Reference ought perhaps to be made to a form of "paratyphoid" fever which is said to be caused by B. paratyphosus (C). In some cases the symptoms resembled those of enteric fever; in others they were those of acute gastro-enteritis. The bacilli which were isolated resembled B. paratyphosus (B) in their cultural characters, but were not agglutinated by B. paratyphosus (B) serum. The fermentation reactions of the organisms do not appear to have been very thoroughly examined, and those who described them do not seem to have realised that the human alimentary canal normally contains organisms which in their cultural characters closely approach the members of the Salmonella group. This fact has been demonstrated very clearly by Morgan in a careful examination of the non-lactose fermenting bacilli present in human stools. He found that many of the cultural characters of these organisms differed very slightly from those of B. paratyphosus (B), although they could at once be distinguished from it by agglutination tests. This observation has been confirmed by Savage. It is possible, therefore, that the organisms which have been described as paratyphosus (C) had no causal relation to the illness with which they were associated, and were merely normal saprophytic inhabitants of the human alimentary canal.]

2. Another definition of paratyphoid fever has recently been advocated by Lieutenant-Colonel R. H. Firth, R.A.M.C., who suggests that the term should be limited to the disease caused by B. paratyphosus (A). His reasons for this definition are, first, that in Europe the term paratyphoid fever is often applied to cases of acute gastro-enteritis following the consumption of infected meat, and, secondly, that B. paratyphosus (B) does not belong to the "paratyphoid" group, but causes the symptoms of meat poisoning. He appears, therefore, to be of the opinion that the cases which clinically resemble enteric fever are invariably caused by B. paratyphosus (A), and that the statements made as to the presence of B. paratyphosus (B) in such cases are erroneous. It is perfectly clear, however, from Savage's description that B. paratyphosus (B) can cause an illness clinically indistinguishable from enteric fever, or from the disease caused by B. paratyphosus (A). Similar cases have been described by Boycott, Schottmüller, Conradi and Jürgens, Sacquepée and Bellot, Rolly, and many others. Moreover, almost every complication which follows paratyphoid (A) fever has been observed in the course of the illness caused by B. paratyphosus (B). Lieutenant-Colonel Firth has apparently been misled by the confusing connotation of the term paratyphoid bacilli used by German writers;

and all the evidence goes to show that paratyphoid fever can be caused by either of these bacilli.

SUMMARY AND CONCLUSIONS.

The evidence which has been placed before you makes it clear, I think, that meat poisoning and paratyphoid fever are distinct diseases (Table IV.). In the first place, they are

TABLE IV.

—	Paratyphoid fever.	Meat poisoning.
Causal organisms	B. paratyphoid (A) and (B)	B. suipestifer and B. enteritidis (Gaertner).
Latent period ...	8 to 18 days.	Usually 12 to 48 hours.
Clinical picture...	Resembles enteric fever.	Acute gastro-enteritis.
Habitat of causal bacilli	Human alimentary tract.	Alimentary tract of certain lower animals.
Mode of infection	Human carriers.	Contaminated meat.
Human carriers...	Common.	Practically unknown.

caused by different bacilli, which (though closely allied) can be distinguished by appropriate methods. Secondly, the distribution of the organisms which cause paratyphoid fever is quite unlike that of the organisms which cause meat poisoning. Thirdly, paratyphoid fever is spread by human bacillary carriers, whereas meat poisoning results from the consumption of food which is derived from infected animals or is contaminated by animal agency. Finally, the clinical pictures of the two diseases are usually quite dissimilar. It is true that, on the one hand, B. paratyphosus (A) and (B) have, although very rarely, been met with in cases of acute gastro-enteritis, and that, on the other hand, the illness following the consumption of meat infected with Gaertner's bacillus or B. suipestifer may take the form of pyrexia lasting two to three weeks. But I do not attach much importance to these exceptional cases, partly because they are exceptional, but still more because abdominal infections seem unusually liable to variability in their clinical manifestations, a case in point being enteric fever. It may, however, be admitted that the boundary-line between meat poisoning and paratyphoid fever is less well defined in regard to their clinical character than in regard to their epidemiology, and possibly they may eventually prove to be more nearly akin in some respects than now seems to be the case. In these lectures the differences rather than the resemblances between these two diseases have been emphasised, because at the present time this point of view appears the more likely to yield fruitful results in their treatment by preventive measures.

THE DIFFERENT FORMS OF THE HUMAN ELECTROCARDIOGRAM AND THEIR SIGNIFICATION.[1]

BY PROFESSOR WILHELM EINTHOVEN, M.D.,
OF LEYDEN.

THE application of electrocardiography to clinical examination gives valuable data in two different ways. In the first place, it shows the time relations between the action of the ventricles and the auricles. The difference in time between the contraction of these two parts of the heart can be measured easily and accurately. Diseases such as Stokes-Adams's, in which the auricles have a rhythm different from that of the ventricles, and which sometimes give difficulties when examined by the older methods, are always immediately recognised, electrocardiographically. And further may be mentioned that a new insight has been obtained into several other diseases, among which auricular fibrillation takes a prominent place.

But this evening we shall pass over this first group of symptoms, and we shall limit our attention to the second one, which is concerned with the form of the EKG. If this form is perfect, it must be the exact expression of the changes in potential difference which take place between two parts of the human body. It is self evident that a perfect form can only be obtained by means of a perfect instrument, and it need not be mentioned that such an instrument does not exist. The capillary electrometer is not rapid enough when made sufficiently sensitive, and therefore not suitable for clinical purposes. The oscillograph suffers from the same fault, although in a less degree, and has, moreover, the great disadvantage that the movements of the recording mirror are oscillatory. On the contrary, the string galvanometer is in general sufficient for clinical purposes, and by means of this instrument we are able to approximate the exact form of the EKG. so closely that the remaining divergences from it become practically imperceptible.

Not every model of the string galvanometer is equally suitable. Even if we have at our disposal a good instrument in all other respects, the correctness of the work done with it depends in a high degree upon the qualities of a small part of the apparatus, the string, and we have further to take into consideration the magnification and the sensitiveness used.

How is the clinician to know if the curves which he has obtained with the instrument are reliable reproductions of the electrical variations under investigation? He can, it is true, correct the curves obtained by means of data determined from the properties of the instrument, and which are to be found by means of control curves. But such a correction requires a fairly detailed calculation and a reconstruction of the curve, for which reason he will be loth to apply it. And happily this is unnecessary in most cases. It is only necessary to record a control curve in such a way that an equal resistance from a rheostat is introduced into the galvanometer circuit in place of the body resistance, which usually has a value of from 1000 to 2000 ohms.

The tension of the string must be so regulated that an excursion of the image of the string of 1 mm. is equal to 10^{-4} volts. At a given moment a constant potential difference is thrown into the circuit. If the string reaches its new position of equilibrium within about 0·01 second or less, the instrument is rapid and at the same time sensitive enough for recording EKG.'s with sufficient accuracy. The deviations from an ideal EKG. which a curve recorded under these conditions exhibits are so small that in the great majority of cases they may be neglected.

To prove this we reproduce in Figs. 1 and 2 two EKG.'s which were taken from the same person by lead I. The sensitiveness of the galvanometer was accurately adjusted in both records, so that 1 scale division corresponded to 10^{-4} volts. All other conditions were also kept the same as nearly as possible, with the one exception that in recording Fig. 2 a magnification was used twice as large as in Fig. 1. Therefore the string was stretched twice as much in Fig. 2, and in accordance with this the duration of a deflection was reduced to half.

It is possible to determine the duration of a deflection to a certain degree by means of Fig. 3, which was recorded immediately after Fig. 2 upon the same photographic plate. A resistance of 2300 ohms was introduced into the galvanometer circuit from a resistance box, this resistance being equal to that found for the body of the person investigated under the conditions of the experiment. The introduction of a potential difference of 3×10^{-3} volts causes a deflection of 3 × 10 scale divisions, and each deflection is completed in about 0·5 scale divisions—i.e., 0·01 second. The control curve for Fig. 1, which is not reproduced here, shows deflections requiring twice as much time for their completion—i.e., 0·02 second.

Notwithstanding this important difference in deflection time, Figs. 1 and 2 show EKG.'s whose forms agree in all details, and whose various peaks have the same absolute heights within the errors of adjustment—i.e., within a few tenths of a scale division.

We are now justified in making the following conclusion. If the movements of the string could be made 10 or 100 times faster, the sensitiveness remaining the same, or even if, theoretically spoken, an instrument were available with an infinitely small deflection time, the form and dimensions of the recorded EKG.'s would not be thereby perceptibly changed.

On the other hand, if the movements of the string are sufficiently retarded, the form of the EKG. will also be altered. This is illustrated by Fig. 4. This reproduces the EKG. of the same person taken under the same conditions. The sensitiveness of the galvanometer is, just as in Figs. 1 and 2, accurately regulated so that a deflection of the image of the string of 1 mm. corresponds to 10^{-4} volts. But the

[1] A paper read before the Chelsea Clinical Society on March 19th, 1912.

string moves much more slowly, and we now see that all the peaks of the EKG. are reduced in size, whilst the ratio of the peaks to one another is markedly changed.

Allow me to make a comparison here of the requirements to be demanded of the galvanometer and the accommodation of the eye. A definite adjustment of the eye corresponds to a definite distance from an object that must be focussed sharply. Therefore two objects at different distances from the eye can not form absolutely sharp images at the same time, but the physician knows that if the image of an object at 6 metres distance is sharp, the diffusion circles caused by points farther removed are so small that they may be neglected. The accommodation for infinite distance does not differ practically from the accommodation for 6 metres. In the same way we may say that an EKG. recorded with a galvanometer, of which the deflection time is about 0·01 second, does not differ practically from the same EKG. recorded with a galvanometer whose deflection time is infinitely small.

Within these limits the form of the EKG. is independent of the instrument used, and every EKG., when and where it may have been recorded, is immediately comparable with every other EKG.

A parallel can be drawn between image formation in the eye and the recording of the EKG. in still another direction. Suppose that the accommodation of the eye is faultless in a certain case. Even then the retinal image will not be absolutely sharp and exact. The errors of spherical and chromatic aberration, and of defective centration inherent in all optical systems are also found in the eye; and, moreover, the diffraction of the light rays suffices to exclude the formation of an exact image. In the same way there are sources of inaccuracy in the recording of the EKG.; their influence may be decreased, it is true, but can never be completely avoided. I have here in mind not so much the dexterity of the observer, who must regulate the tension of the string exactly, so that the curves may be recorded in absolute measure, as the unavoidable changes in resistance, which the human body offers to the electrical current.

We must make a distinction between the real and the apparent resistance in measuring the resistance of the body. The real resistance is measured by means of an alternating current, in the same way as the resistance of an electrolyte is determined, whereas the apparent resistance is found by making use of a constant current. Under certain conditions the apparent resistance can have a value of more than twice as much as the real resistance, and the question arises, which resistance are we to take into account when regulating the tension of the string. For example, we wish that a deflection of the image of the string of 1 cm. shall exactly represent 1 millivolt, when the human body is in the galvanometer circuit. If the body resistance is large, the string must be relaxed a little; if on the other hand the body resistance is small, the string must be stretched somewhat more tightly, all other conditions remaining equal.

In case the difference between the apparent and the real resistance of the body reaches an important value, the sharp peak R of short duration will be too high in relation to the slow wave T, this being an error which is just the opposite of the error produced by a slow instrument.

How can we best reduce these errors and how large is the error remaining finally? In the first place we must make the resistance of the body as small as possible by putting those parts from which the current is lead off, the hands and the foot, deeply into a strong salt solution. Under these conditions the difference between real and apparent resistance is also reduced to a minimum. Further we must use an instrument with a thin string, thus with a comparatively large internal resistance, so that the variations of the body resistance will only have a small influence upon the current strength.

In regulating the tension of the string we can make use of a rheostat resistance, the value of which is the mean of the real and the apparent body resistance. The difference between these two values need not be larger than 400 ohms under the above mentioned favourable conditions, so that the deviation from the mean will not be more than 200 ohms. If we take the resistance of the string to be 10,000 ohms the maximum error in the dimensions of the curves is 2 per cent.

These errors are much less in reality, because peak R is not recorded in an infinitely short time and peak T not in an infinitely long time. Moreover, an error of 2 per cent. in the absolute values of the potential difference is so small that it may as a rule be neglected in physiological as well as in clinical investigations. The error would be 0·4 mm. for a large peak R of 20 mm. height, and only 0·1 mm. for a large peak T of 5 mm.

Although we cannot attain an absolute accuracy at present, yet we may consider an EKG., when properly recorded, the exact expression of the changes in potential difference, just as we may consider the retinal image an exact reproduction of the object observed.

The Form of the Curve in Connexion with the Different Leads.

It is desirable to apply three leads in electrocardiographic investigations: (1) from the two hands, across the body; (2) from the right hand and left foot, obliquely; (3) from the left hand and left foot, lengthwise. The galvanometer must be connected to the human body in such a way that the image of the string is deflected upwards when the base or the right half of the heart is negative in respect to the apex or the left half.

Each of the three leads produces an EKG. of special form so that each has its own peculiar value. Lead I has the advantage of being applied easily in the clinic. The curve obtained is of especial value in judging peak T and certain atypical EKG.'s. With lead II the peaks are usually larger. Especially the auricular peak P is clearly shown and may therefore be best studied with this lead. In judging the wave T in cases of cardiac insufficiency lead II has the same importance as lead I. On the other hand, many atypical forms of the EKG. can be studied better with lead I than with lead II.

Lead III is most suited for diagnosing hypertrophy of the right or left ventricle. Atypical EKG.'s are also well shown by lead III. On the other hand, the wave T obtained by this lead is of no value in drawing conclusions as to the functioning of the heart. T_{III} has different heights in normal EKG.'s, is often negative, and often practically absent.

The Connexion between the Forms Obtained with the Three Leads.

From the nature of the case there must be a connexion between the curves obtained by the three different leads from the same person. If two forms are known, the third may be calculated from them. The difference between the electrical tensions of leads I and II must be equal to the electrical tension of lead III. This may be formulated: lead II − lead I = lead III. The formula holds good only in case the current which is flowing through the galvanometer exercises no influence upon the tensions present at the extremities. As a matter of fact, this influence is so small that we may neglect it without making a perceptible error. For the total resistance of the circuit containing the galvanometer and the human body is very large when compared to the resistance of the heart muscle. We may therefore assume *a priori* that the formula is exact.

We might attempt to make use of this formula when examining patients, for the sake of simplicity contenting ourselves with the recording of two leads. The curve of the third lead would then be constructed from the other two. Although the construction seems to be easy, yet its execution gives difficulties, the main cause of which lies in the fact that the peaks, which we generally indicate by means of the same letters, do not occur in identical phases of a heart's revolution. It is possible to show this in various ways—e.g., by comparing the distances between the peaks P, R, and T in the curves obtained by lead I with the corresponding distances in the curves obtained by lead II and lead III. It then appears that the peaks mentioned stand closer to one another in lead I.

A superficial examination of certain curves—for example, those of Fl. (Figs. 5, 6, 7), in which the three leads exhibit fairly large differences—might appear to favour a doubt as to the practical validity of the formula. But it is not difficult to show that the rule is also in accordance with the facts.

The simplest way to do so would be to record two or three curves by the various leads immediately under one another. Two or three large string galvanometers should be used and the images of the three strings should be projected by means of mirrors upon the same photographic plate. It seems to me that the use of a small model of the galvanometer, in which two or more strings are placed in the same magnetic

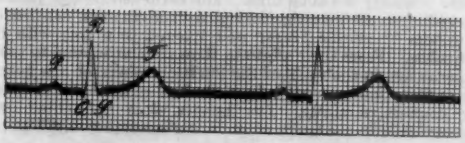

FIG. 1.—Br. Lead I. Magnification of the movements of the string 660. Absc. 1 sc. div. = 0·02 sec. Ordin. 1 sc. div. = 10^{-4} volts.

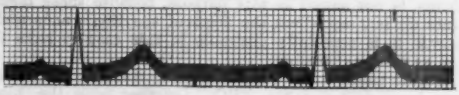

FIG. 2.—Same person and same lead as in Fig. 1. Magnification of the movements of the string about 1200. Value of abscissæ and ordinates as in Fig. 1.

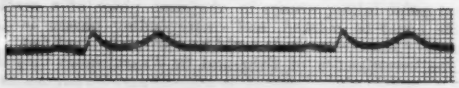

FIG. 4.—Same condition as in Fig. 1, with the exception that an extra resistance of 100,000 ohms has been introduced into the galvanometer circuit.

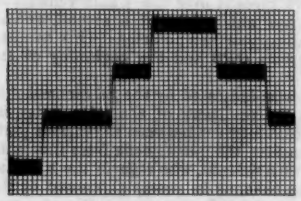

FIG. 3.—Control curve corresponding to Fig. 2. Absc. 1 sc. div. = 0·02 sec. Ordin. 1 sc. div. = 10^{-4} volts.

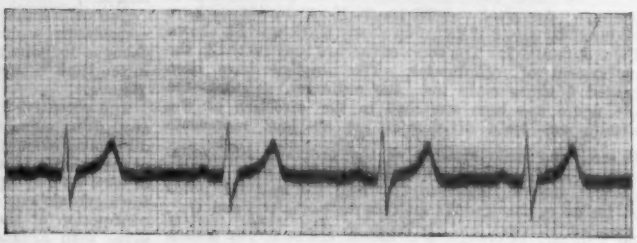

FIG. 5.—Fl., Lead I. Absc. 1 sc. div. = 0·04 sec. Ordin. 1 sc. div. = 10^{-4} volts.*

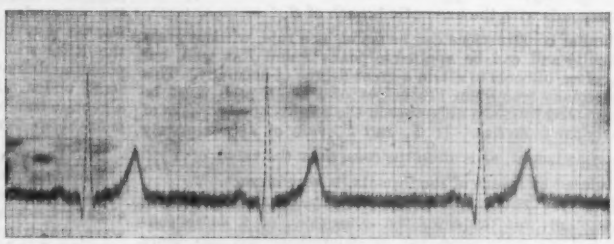

FIG. 6.—Id. Lead II.

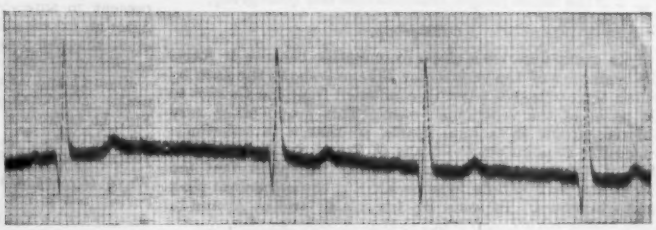

FIG. 7.—Id. Lead III.

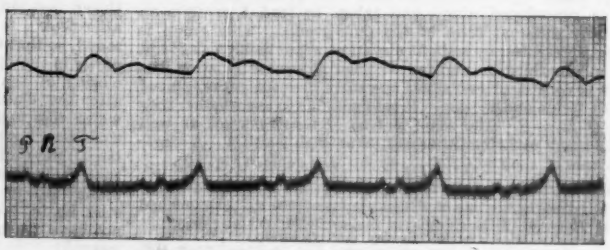

FIG. 9.—Wi. Lead I. A remarkable *QRS*-group.

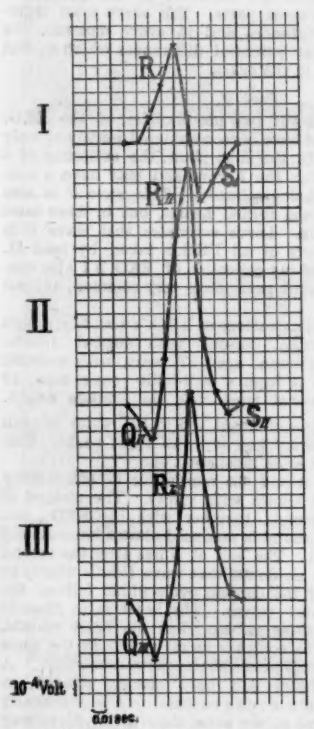

FIG. 8.—Construction of the *QRS*-group in the three leads. Each ordinate represents identical phases of a cardiac cycle. Absc. 1 sc. div. = 0·01 sec. Ordin. 1 sc. div. = 10^{-4} volts.

* If not otherwise mentioned the abscissæ and the ordinates in all figures have the same value as in Fig. 5.

field, or the use of an oscillograph containing a number of mirrors, is not suited to this purpose, because these instruments do not reproduce the form of the EKG. accurately, whereas it is especially desirable in this case to have the form as exact as possible.

Another method has been applied by Fahr and de Waart. They have recorded the EKG., together with the heart sounds, according to the method of Kahn. The EKG.'s obtained by the three leads were taken from the same person under exactly the same conditions, the curve of the heart sounds being combined with each EKG. By this means a fixed point falling always in the same phase of a cardiac cycle could be marked, and corresponding phases in the curves of the various leads could be accurately identified.

The investigation of Fahr and de Waart shows that the ventricle EG. when obtained by leads II and III begins, as a rule, a little earlier than when obtained by lead I, whereas the summit of R_I is reached a little earlier than the summits of R_{II} and R_{III}. If we make use of these data it is not difficult to show the validity of the formula, even in complicated forms of the EKG. To illustrate this we have reproduced in Fig. 8 *QRS*-group of the EKG.'s of Fl. shown in Figs. 5, 6, and 7. The three curves are constructed in the same system of coördinates. The abscissæ have been increased 4 times more than the ordinates, so that the whole figure has been stretched in the direction of the abscissæ; one scale division of the abscissæ represents 0·01 sec., one scale division of the ordinates 10^{-4} volts. Each vertical line corresponds to one phase of a cardiac cycle and the formula lead II − lead I = lead III holds good for every phase. We see that the peaks Q_{II} and Q_{III} begin 0·01 sec. before R_I and fall in the anacrotic branch of this peak. The whole peak S_I falls in the catacrotic branch of R_{II} and R_{III}, whilst the whole of peak S_{II} only corresponds with the anacrotic branch of S_I.

Similar constructions can be made, as a rule, without great difficulty and can be applied to peaks *P* and *T* as well, but it is often difficult to attain a great degree of accuracy. This is especially true when the height of a small peak must be determined from the difference in the heights of two peaks of nearly the same size. If T_I and T_{II} are of approximately the same height, as is often the case, then the value of T_{III}, calculated by means of the formula, is very inexact.

It is thus evident that we should not content ourselves with taking only two leads, for the dimensions of a curve constructed by calculation can be determined not only more simply but also more accurately by directly recording it by the third lead. The great advantage of a construction as in Fig. 8 is the better insight obtained into the *QRS*-group.

QRS-group.

This group deserves a closer examination because it forms the beginning of the ventricular EG. and shows the path by which the excitation wave is conducted from the auricles to all parts of the ventricular wall. This group takes very different forms in normal hearts, so that it is sometimes impossible to point out the peaks *Q*, *R*, and *S*. The examination of even a small number of curves will show that the inconstant peak *Q* fails in some EKG.'s, the inconstant peak *S* fails in others. In some EKG.'s *S* is as large as *R*, and in some others both *Q* and *S* fail so that only *R* remains.

We reproduce here an EKG. of *Wi.* (Fig. 9), who possesses a normal heart. The curves obtained by leads I and II show large peaks *R*, as is often the case with normal hearts. The curve reproduced above and taken by lead I exhibits an entirely different form of the *QRS*-group. This group is here represented by a slight elevation, about as high as *P* and about one-third as high as *T*. On closer examination it is seen to consist of two small upwardly directed peaks, placed close beside one another. It is impossible to say whether they are *Q*, *R*, or *S*. The same is true of many normal as well as of many pathological curves taken with lead III. A single example of such a $(QRS)_{III}$-group may suffice (Fig. 10).

We have here again two upwardly and two downwardly directed peaks, no one of which may possibly be distinguished as *Q*, *R*, or *S*. T_{III} is negative in the EKG. of this person.

The explanation of the ventricular EG. is based upon this great variability in the *QRS*-group. As soon as the excitation wave has reached the ventricular walls through the atrio-ventricular bundle and the Purkinje fibres, the ventricular musculature begins to contract in many places at the same or nearly the same time. The atrio-ventricular bundle, according to the investigations of Aschoff-Tawara, consists of a system of muscle fibres, well likened to a tree with its branches. From their origin in the auricular septum to their arborisation in the walls of the lower chambers of the heart, these fibres are separated from the rest of the heart muscles by connective tissue. The bundle does not enter into connexion with the heart musculature excepting with its end ramifications, which are spread over a large surface in the walls of the ventricles, fusing with them at many points. The great variety of forms of the *QRS*-group is caused by small variations in the architecture and the conductivity of the bundle and the Purkinje fibres, so that the excitation wave in some hearts reaches the right side 0·01 second sooner than the left, or the base sooner than the apex, whereas the opposite sequence occurs in other hearts.

The contraction wave spreads over the whole ventricular musculature within a few hundredths of a second, and all changes in potential disappear temporarily. This happens in the time between group *QRS* and the beginning of the *T* wave.

The potential difference indicated by the galvanometer in any given moment is the resultant of the joint potential differences existing at that moment between the various parts of the heart. If we consider the phenomena from this point of view we may agree with Selenin, who regards the EKG. as the algebraic sum of the changes in potential, caused by the contraction of the right and left chambers. We also may agree with Eppinger and Rothberger, who assume that the EKG. is the resultant of the forces in the constrictor fibres and in the longitudinal fibres of the heart musculature. Neither is there any objection to the idea of the EKG. being the expression of the antagonism between base and apex. For we may divide the heart into two arbitrary parts, and the EKG will always be the resultant of the changes in potential differences in these parts. The curve must represent, under all circumstances and in every moment, the algebraic sum of all the potential differences which at that moment are developed in the heart.

Peak U.

We must now point out two peculiarities of the EKG. which up to the present have been considered worthy of only slight consideration. In the first place, the existence of a wave, which comes after the *T* wave and may have a considerable height in pathological cases. This wave *U* is also present in the curves from normal hearts, but in these cases it is very low as a rule. Lewis estimates that wave *U* is present in three-quarters of all EKG.'s taken by lead II. After an examination of my collection of EKG.'s I also conclude that the presence of peak *U* is very common, at least in half of all persons.

Figs. 11 and 12 are illustrations of EKG.'s with fairly high peaks *U*, obtained from persons with normal hearts. Fig. 11 is from a sportsman, aged 37 years, with a strong musculature; Fig. 12 is from a well-built young man, 19 years of age, of somewhat more than the average height. Wave *U* reaches a value of about $0{\cdot}5 \times 10^{-4}$ volts in both curves, but is not of equal height in all heart beats. This wave must be regarded as an inconstant one.

The significance of it and the reason for its inconstancy are for the present not known with surety. The method of recording the heart sounds, together with the EKG., has shown that the second sound is produced almost immediately after peak *T* is finished. The end of *U* lies after the second sound, so that there is no doubt that wave *U* fails wholly or partly in that phase of the cardiac cycle which follows the closing of the semilunar valves. The heart is in diastole after the closing of these valves. But the heart muscle, which does not begin to contract at all points at the same time, does not relax at all points at the same time either. A large part of the heart can have already relaxed, so that the pressure in the heart's cavities may be practically diminished to zero, and at the same time a few fibres may still be in the condition of contraction. Peak *U* will not have reached its end until these latter fibres are fully relaxed.

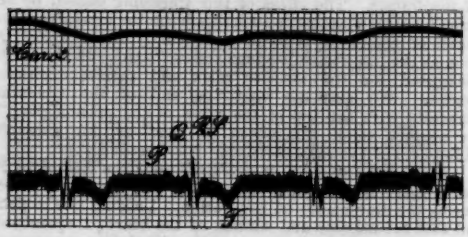

FIG. 10.—Jo. Lead III. A remarkable *QRS*-group.

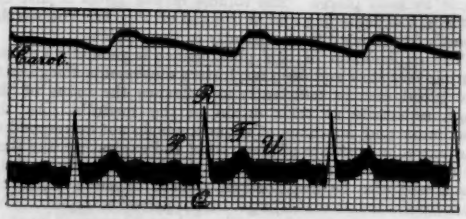

FIG. 11.—Br. Lead II. Wave *U* visible.

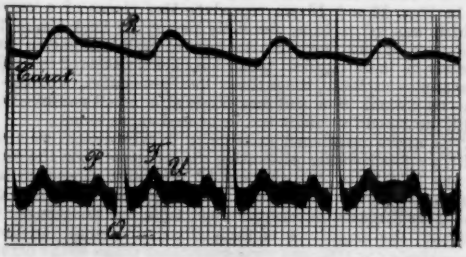

FIG. 12.—Sch. Lead II. Wave *U* visible.

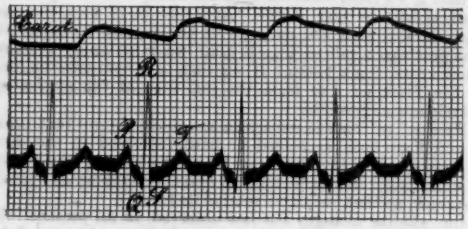

FIG. 13.—Em. Lead II. The level of the curve between *P* and *Q* is different from the level during diastole.

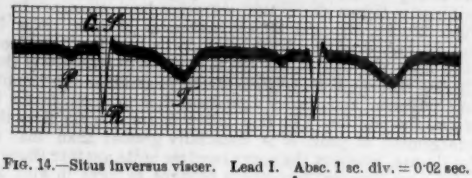

FIG. 14.—Situs inversus viscer. Lead I. Absc. 1 sc. div. = 0·02 sec. Ordin. 1 sc. div. = 10^{-4} volts.

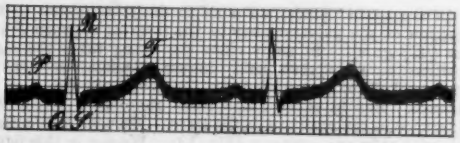

FIG. 15.—Id. The connexions of the electrodes reversed.

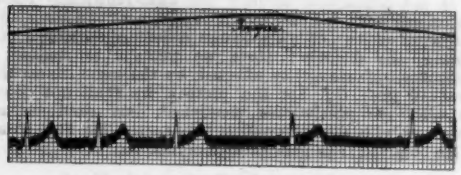

FIG. 16.—Bl. Lead I during inspiration.

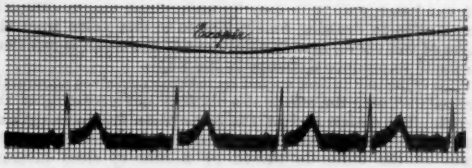

FIG. 17.—Id. Lead I during expiration.

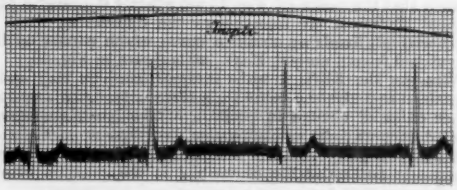

FIG. 18.—Id. Lead III during inspiration.

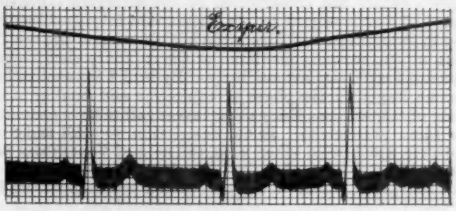

FIG. 19.—Id. Lead III during expiration.

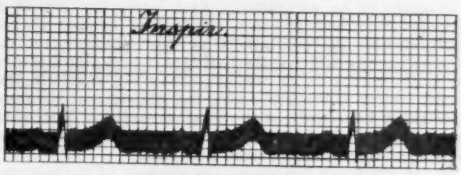

FIG. 20.—Bak. Lead I during inspiration.

The Interval between Auricular and Ventricular Contraction.

In the second place, we wish to direct attention to the position of the galvanometer in the interval between *P* and the *QRS*-group. In many cases the string takes the same position here as that held during diastole, so that a horizontal line is recorded at the level of the line of diastole. But in many other cases there is a perceptible difference in the positions of the lines. We wish to illustrate this with only one example (Fig. 13). We see in this figure that the curve between *P* and the *QRS*-group lies about 1 mm.—i.e., 10^{-4} volts lower than during diastole. To what must this be ascribed?

Is the conduction through the atrio-ventricular bundle accompanied in this case by the development of a perceptible electrical current, or is a potential difference developed even during the diastole? Have we perhaps to consider a generation of electricity effected by the same causes that produce peak *U*? For the present we shall not choose between the possibilities mentioned, but shall content ourselves with the information that curves like Fig. 13 are often obtained from persons with normal hearts.

The Influence of the Position of the Heart.

The position of the heart influences the form of the EKG. In electrocardiographic investigations we are chiefly interested, however, in getting a better insight into the *functioning* of the heart, and it is easy to understand that a difficulty must arise in drawing conclusions as to this point from the form of the curve, if a displacement of the organ is sufficient in itself to produce a change in the EKG.

The difficulty is best solved by making ourselves accurately acquainted with the effects of a shifting and a rotating of the heart. The easiest and at the same time the most striking example of the influence of the position of the heart upon the form of the EKG. is offered by a case of situs inversus viscerum. Waller was the first to investigate such a case, and since then a number of other cases have been published. I permit myself here, moreover, to publish a curve taken by Dr. Fahr from a boy aged 7 years by lead I. We see immediately that the peaks of Fig. 14 are exactly the reverse of a normal EKG. If we interchange the conducting wires to right and left hands we obtain a curve which cannot be distinguished from a normal EKG., as is shown in Fig. 15.

Whereas the EKG. in situs inversus may be very easily explained and gives no cause for a more extended discussion, other cases of change in position of the heart are accompanied by more complex phenomena, and these require a more detailed analysis for their understanding. We shall here discuss in particular the deviations in the position of the heart which accompany the movements of respiration.

Movements of the diaphragm participate to a greater or less extent in the respiratory movements of women as well as of men, and the heart must be displaced in the thorax whenever the diaphragm takes a higher or a lower position.

Even before the construction of the string galvanometer Samojloff demonstrated to his classes that increased respiratory movements had a perceptible influence upon the oscillations of the mercury meniscus of the capillary electrometer connected with the human body. By lead I the oscillations became larger in the phase of expiration and smaller in the phase of inspiration. Many other investigators have examined the same phenomena. In our description we shall make use of curves which were taken with the help of Vaandrager and later with the help of Fahr and de Waart. In Figs. 16 and 17 we see pieces of a curve which was taken from Bl. by lead I. The upper curve is the pneumogram.

The pneumogram was obtained by recording the movements of a Hutchinson spirometer into which the person under investigation breathed. A movement of the recording lever upwards corresponds to an inspiration, a movement downwards to an expiration. Each scale division of the ordinates represents 250 c.c. inspired or expired air; the amplitude of the oscillations of the pneumogram vary between 11·3 and 11·5 scale divisions—i.e., 2·8 to 2·9 litres. The vital capacity of the person amounted to 4·4 litres; thus the respiratory movements during the recording of the curves were about two-thirds of the vital capacity. These movements were sufficient for our purpose, and at the same time the subject could execute them with ease.

The pneumogram reproduces the changes in the volume of the thorax without practically any delay. This may be shown by means of the trembling of the subject at the height of inspiration. The effect of this trembling caused by the strong muscle contractions necessary for the excessive movements of inspiration is to be seen clearly in the EKG. As soon as the inspiration is ended the oscillations in the EKG. disappear, for the muscles relax and passive expiration begins. We may say that the end of the trembling coincides with the top of the wave of the pneumogram, if we neglect small differences in time—as, for example, differences of five scale divisions, or 0·2 second.

Apart from the form of the EKG. and the height of its peaks there is a striking variation in the heart's frequency during the movements of respiration. I should like to point out that the maxima and minima of the heart's frequency do not correspond with the crests and troughs of the pneumogram. For instance, the longest pause in the heart's action is found at the end of Fig. 16, the shortest pause at the beginning of the same figure, whereas the volume of the lungs is about the same in both places. The volume of the lungs is also the same at the beginning and at the end of Fig. 17, whereas the heart's frequency differs markedly in these places.

The explanation of this phenomenon is generally known; during very slow and deep respiratory movements the gases of the blood change sufficiently to influence the tonus of the vagi, especially at their origin in the medulla. As the maximum and minimum of vagus tonus do not correspond to the extreme positions of inspiration and expiration, the time of the greatest and the time of the least frequency of the heart will also be displaced in respect to these positions. This displacement varies largely from person to person. We have mentioned this circumstance here because it must be taken into account whenever the influence of the respiratory movements upon the form of the EKG. is discussed. For we know that the form and magnitude of peak *P* as well as of wave *T* can be materially changed by the action of the vagi.

In Figs. 18 and 19 we reproduce two pieces of a curve, which was taken from the same person by lead III. The influence of the vagi upon the form of peak *P* is shown very clearly in these figures. After long heart pauses *P* is small, sometimes diphasic, other times totally negative, whereas *P* has its normal form and magnitude after small pauses—i.e., with increased frequency and decreased vagus tonus.

The above mentioned facts make it evident that we meet with a difficulty when estimating the influence upon the form of the EKG. of a displacement of the heart caused by the respiratory movements. Peak *P* is influenced by two factors, and it is not easy to separate them from one another nor to estimate the magnitude of each alone. We shall therefore concentrate our attention upon some other peaks of the curve.

We see from Figs. 16–19 that the peaks of lead I are larger during expiration, whereas by lead III they become smaller during the same phase of respiration. If we consider these facts in connexion with the formula, lead III = lead II —lead I, we must conclude that the changes in the peaks of lead II will be very slight. And this is, in fact, the case with Bl. and with the majority of the persons investigated. The practical result of this is that we must apply this lead when examining a patient if we wish to investigate the form of the EKG. as free from the influence of the respiratory movements as possible.

Further, we wish to remark in the above figures that peaks *R* and *T* are both decreased or both increased in the same degree as well in lead I as lead III during the various phases of breathing. Thus the relative heights of the peaks remain the same, so that the curve retains its form.

But similar changes are not observed in all persons. In some persons we find differences which upon superficial examination seem to be wholly irregular and thereby puzzling. We shall first describe some of these differences separately, and shall then try to unite them all under one point of view.

In the first place we shall direct attention to the fact that the changes which peak *R* undergoes are, in many cases, materially larger than the corresponding changes in *T*. Figs. 20, 21, 22, and 23 are examples of this. Figs. 20 and 21 reproduce the EKG. of Bak. by lead I. Two pieces have been cut out of the original curve in such a way that Fig. 20 renders that portion of the record taken in inspiratory position, and Fig. 21 renders that portion taken in expiratory position. In this latter figure we see that the enlargement of peak *R* is materially greater than that of the *T* wave, whereby the curve receives quite another shape.

An even greater disparity is brought to light in Figs. 22

FIG. 21.—Id. Lead I during expiration.

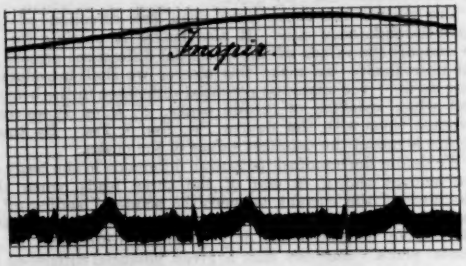

FIG. 22.—Wi. Lead I during inspiration.

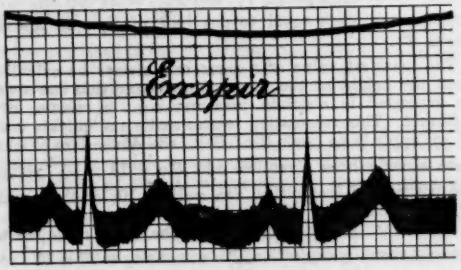

FIG. 23.—Id. Lead I during expiration.

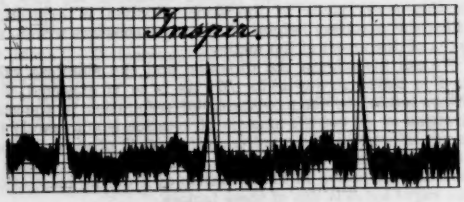

FIG. 24.—Bak. Lead III during inspiration.

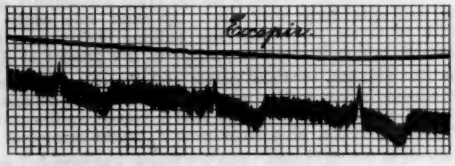

FIG. 25.—Id. Lead III during expiration.

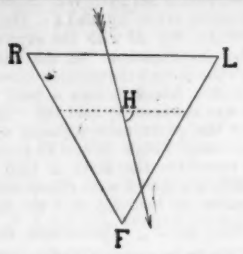

FIG. 26.—Schema of the equilateral triangle. *R* corresponds to the right hand, *L* to the left hand, and *F* to both feet. The heart, *H*, is in the centre. The arrow indicates the direction of the potential differences in the heart. $\alpha = 76°$.

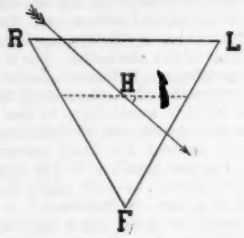

FIG. 27.—Id. $\alpha = 40°$.

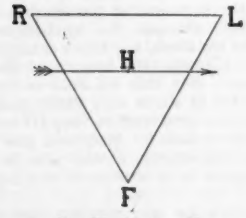

FIG. 28.—Id. $\alpha = 0°$.

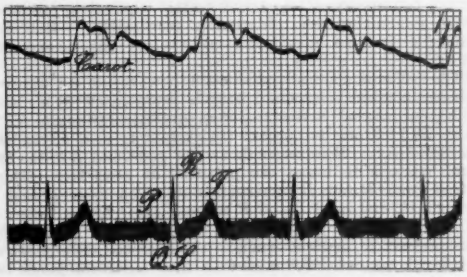

FIG. 29.—Fl Lead I, lying on his left side.

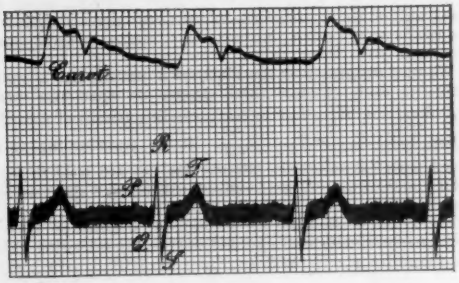

FIG. 30.—Id. with same lead, lying on his right side.

and 23, which were obtained from Wi. Here we have again two pieces of a curve taken by lead I; Fig. 22 corresponds with the inspiratory, Fig. 23 with the expiratory position of the person under investigation. In the first position R is larger than T, in the second the relation is reversed.

Another difference found is that a peak which becomes larger in lead I also increases in lead III. This phenomenon occurs whenever the peaks have opposite directions in the above-mentioned leads. Figs. 24 and 25 furnish an example of this. They reproduce the EKG. in lead III of the same person whose EKG.'s in lead I were shown in Figs. 20 and 21. Wave T is negative in lead III and we see that T_{III} has increased as well as T_I. Phenomena similar to those described above are to be observed in the *QRS*-group.

But we shall now try to explain the apparently so irregular effects of the respiratory movements upon the form of the EKG. In the first place we exclude the possibility that such potential differences as are shown by our curves might be due to accidental causes—as, for instance, the muscle contractions necessary for the respiratory movements, or to a displacement of the electrodes. For if such secondary causes should exercise an influence synchronous with the movements of respiration, then the curved line which reproduces a series of EKG.'s would have to rise and fall in the same rhythm as the movements of breathing. But we see that the line drawn through the heart pauses does not show such a rhythm. On the contrary, it has in many curves an absolutely straight course, as may easily be seen with the aid of the system of square millimetres.

As a second possibility to be taken into account we may mention the influence of a changing body resistance, a hypothesis pointed out by Samojloff. The electrical resistance of the organs surrounding the heart must show during breathing rhythmic changes due to changes in the blood and air content of the chest, and these changes in resistance must necessarily influence the heights of the peaks of the electrocardiogram. But this influence is obviously small, for the curve of lead II shows only slight changes as a rule, whereas the changes produced in lead III are as a rule the opposite of those in lead I. Moreover, the fact that the relation between the heights of the peak is often changed cannot be explained by a change in the resistance of the body.

As a third cause we may mention that the manner in which the heart contracts depends upon the pressure in the thorax. The negative interpleural pressure, which increases during inspiration and decreases during expiration, mechanically influences the circulation perceptibly. But this influence is also insufficient to explain the phenomena described.

The difficulties are solved at once, however, if we apply a schema in which the human body is represented by a plane, homogeneous plate in the form of an equilateral triangle, RLF. (Fig. 26.) From its corners the current is lead off to the galvanometer. R corresponds to the right and L to the left arm, while F indicates the potential of both feet. Thus, a lead from R and L corresponds to lead I, from R and F to lead II, and from L and F to lead III. A small spot H in the middle of the triangle represents the heart. We assume that in a given moment the potential differences in the heart are so distributed that their resultant takes the direction of the arrow drawn in the figure. This direction indicates the direction of the current in the heart. The angle which the arrow forms with the side RL is called α. We shall call the angle positive if, when looking towards the front wall of the chest of the patient, the arrow rotates with the hands of the clock; negative if it rotates in the opposite direction.

We now suppose that the EKG. of a patient has a simple form in each of the three leads, so that the peaks R_I, R_{II}, and R_{III} fall in corresponding phases of a cardiac cycle, and $R_{II} - R_I = R_{III}$. If we transfer the values found with the patient to the schema we are able to determine the direction of the potential difference which has been present in the heart during the recording of R.

The EKG. of Bak. in the position of inspiration may be taken as an illustration. In his curves the following values are found for R: $R_I = 3{\cdot}2$, $R_{II} = 12{\cdot}5$, $R_{III} = 9{\cdot}3$ millivolts. In the homogeneous triangular plate with the heart in the centre these values can only be produced by a potential difference, having the direction of the arrow drawn—i.e., that $\alpha = 76°$.

In the position of expiration we find for the same person: $R_I = 9{\cdot}2$, $R_{II} = 11{\cdot}2$, $R_{III} = 2{\cdot}0$; wherefrom we can calculate that under the circumstances $\alpha = 40$. (*Vide* Fig. 27.)

Thus we are able to demonstrate by means of the schema that the heart has rotated in the chest around a sagittal axis during the movement of expiration. The amount of rotation according to the schema is $\alpha_1 - \alpha = -36°$. As we have reason to believe that the real amount of rotation in the body corresponds sufficiently well for practical purposes with the amount of rotation in the schema we shall hereafter simply consider the direction of the potential difference in the body as parallel to the direction of the arrow in the schema. The way in which α can be calculated from the potential differences recorded need not be explained in details. It may suffice to state that the calculation is simple and can be executed very quickly.

The schema can show more than the direction of the potential difference only. It also makes it possible for us to compare the values of the potential differences present in the heart itself. To make this clearer we shall introduce a new term, "the manifest potential difference in the heart," and when speaking of certain peaks, P, R, or T, we shall indicate them with the figures Pm, Rm, or Tm. By these figures is meant the manifest values of the peaks.

We define the manifest potential difference in the heart as the amount shown in one of the three leads, when the direction of the current between the points of leading off is parallel to the direction of the potential difference in the heart. We here consider only potential differences in a frontal plane. Suppose that a given potential difference in the heart forms the peaks T_I, T_{II}, and T_{III}, and that the direction of the current in the schema is represented by an arrow parallel to the side RL (see Fig. 28), then T_I is the largest of the three peaks, T_{II} and T_{III} being opposite to one another, and each equal to one half of T_I. In this case $Tm = T_I$.

The manifest value of a peak can always be calculated from the height of the recorded peaks and thus can always be expressed in absolute measure—e.g., in tenths of a millivolt. This calculation is also easily and quickly made. If we apply it to peak R of Bak., the dimensions of which have already been given, we find $Rm = 13 \times 10^{-4}$ volts in the position of inspiration, $Rm = 12 \times 10^{-4}$ in the position of expiration.

In another person a rotation of the heart of $-12°$ was brought about by expiration, Rm amounting to 27×10^{-4} volts in a position of inspiration and to 26×10^{-4} volts in a position of expiration. In a third person a rotation of $-20°$ was found, whilst Rm kept the constant value of 20×10^{-4} volts. In all persons examined till now the rotation takes place in the same direction in expiration, whilst the manifest height of R keeps constant within the limits of the errors of the method.

We can investigate the direction and the manifest value for T in the same way as for R. As is to be expected, T is always rotated by the movements of respiration in the same direction as R, but the amount of rotation is not exactly the same. Moreover, the manifest value of T changes—a fact which points out that other factors besides the rotation of the heart are active in the formation of T during respiration. The vagus tonus is one of these factors.

There are good reasons for assuming that the most prominent peaks of the ventricle electrogram, T and R, are brought about by potential differences localised in approximately frontal planes. This is proved by the behaviour of peak S in lead I. When a person lying horizontally upon the left side turns over upon the right side whilst his EKG. is taken, we obtain the striking phenomenon that peak S_I, which is often very small or not present at all in the first position, becomes visible and sometimes reaches a prominent height in the second position. Figs. 29 and 30, both of which were taken by lead I, furnish an illustration of the production of a large peak S_I by the turning of the body on to the right side. Fig. 29, which was recorded while the patient was lying upon the left side, shows a small peak S, which may almost be neglected, whereas Fig. 30, which was

obtained while the patient was lying upon the right side, shows a peak S so large that we are inclined to be astonished that both curves have been obtained from the same person, with the same lead, and with the exception of the body position, under quite the same circumstances.

The most satisfactory explanation of this, upon superficial examination, so puzzling phenomenon is to be found in the assumption that the heart rotates in the chest about the longitudinal axis of the body, when the body itself turns from the right upon the left side. If there is a potential difference in the heart having a sagittal direction, then a slight rotation of the organ about the longitudinal axis of the body can produce a material change in the height of the corresponding peak, and this will be especially well shown by lead I. If the potential difference has exactly the sagittal direction the peak entirely disappears. It is probable that the large differences in S in different persons, as well as its inconstancy, must, as a rule, be explained by this circumstance.

We direct attention to the fact that in Figs. 29 and 30 the peaks P, R, and T undergo hardly any change. If we conclude from the enormous change in S that a rotation of the heart has taken place round the long axis of the body, then we must also assume that the peaks P, R, and T are developed in approximately frontal planes, or in other words, in planes making relatively large angles with the sagittal plane, for thereby it can be most easily explained that under these circumstances the changes in these peaks are so small.

The application of the schema of the equilateral triangle accounts for a number of phenomena here treated of. First it is immediately obvious from the schema that a comparatively large displacement of the heart parallel to itself will only slightly affect the heights of the peaks recorded. This explains the fact that the EKG. of many persons is hardly perceptibly changed or is not changed at all during the ordinary movements of breathing. It also explains the fact that with the exception of peak S, there are only slight changes produced in the EKG., when the body is turned from one side to the other, although we must expect from the anatomical conditions that the heart has hereby taken a lower position in the chest.

The schema explains easily and satisfactorily how the various peaks of the EKG. are often unequally increased or decreased by a change in the position of the diaphragm, and why the curve of lead II shows slighter changes than the curves of leads I and III. A potential difference which is present in the heart and has a direction which in the one position of the heart makes an angle of 80°, and in the other position an angle of 40°, according to the schema, causes the formation of a peak which remains unchanged in lead II, but which is very much altered in lead I as well as in lead III. If this peak in lead II has the value $9{\cdot}4 \times 10^{-4}$ volts in the first position of the heart, it keeps this value in the second position. It increases in lead I from $1{\cdot}7 \times 10^{-4}$ volts in the first position to $7{\cdot}7 \times 10^{-4}$ volts in the second. It decreases in lead III from $7{\cdot}7 \times 10^{-4}$ volts in the first position to $1{\cdot}7 \times 10^{-4}$ volts in the second.

It is equally clear why a peak which has the same direction in leads I and III undergoes opposite changes by a displacement of the diaphragm, whereas it is either increased or decreased in both leads if it has a positive value in lead I and a negative in lead III. This is the case when α has a value between $-90°$ and $+30°$.

With the aid of the schema we are in a better position to judge the form of the EKG. under all circumstances. For instance, it is possible therewith to show that an increased frequency of the heart brought about by bodily exercise is always accompanied by a positive rotation of T and by an increase in the manifest value of this peak. In myodegeneratio cordis and in many cases of auricular fibrillation T is small in all three leads. It need not be said that Tm must also be small under these circumstances.

In cases of hypertrophy of the left ventricle we sometimes find the most prominent peak of the QRS-group in a direction represented by $\alpha = 40°$, whereas in normal hearts the value of α for this peak lies between $+40°$ and $+90°$. We see from these figures that the deformation of the EKG. in this heart affection is not, or not chiefly, caused by a change in the position of the heart. The manifest value of the most prominent peak of the QRS-group in hypertrophy of the left ventricle can reach the enormous value of 26×10^{-4} volts. In hypertrophy of the right heart we obtain, as is well known, EKG.'s of an entirely different form, to which, however, similar considerations may be applied. By means of the schema we can in general differentiate the real changes in the heart's action from the apparent ones, which are only caused by variations in the position of the heart.

Atypical contractions may also be examined with the aid of the schema. They are of great importance in the clinic, and are worthy of a special, detailed discussion, but I must conclude now.

It gives me an especial pleasure to bring to remembrance here that the human EKG. was first recorded by a London physiologist, Augustus D. Waller, who also introduced the term "electrocardiogram" into science; and that Dr. Thomas Lewis, whose extensive researches have been crowned with such exceptional success, was the first man in England who applied electrocardiography to clinical investigations.

The method of electrocardiography is still a young plant. We may reasonably expect that it will continue to bear good fruit.

A CASE OF RUPTURED KIDNEY.

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RUPTURE of the kidney is such a rare condition that it becomes a duty to report a case, especially when accompanied by conditions of peculiar interest. Morris collected 26 cases from American and English authors from 1884 to 1896 inclusive, of which 14 died and 12 recovered; and Keen, in 1896, reported 118 cases of subparietal rupture published since 1878. The causes are usually crushes, direct blows, falls from a height, or forcible flexion of the trunk antero-posteriorly or laterally, the most common being by direct violence, by buffer accidents, the passage of wheels over the ilio-costal space, or falling over a hard object, or by a fractured rib penetrating the organ, usually occurring between the ages of 20 and 40 years; it is rare at other ages, being due to occupation risks. A more rare cause is by indirect violence, or simple muscular contraction, and Morris quotes three cases which resemble the case which came under my notice. A man, walking behind a wagon loaded with sacks, observing one falling off, attempted to catch it, and was seized with sudden pain followed by hæmaturia (Clement Lucas). A girl of 14 doubled up her body in jumping, and was seized with severe pain, collapse, and hæmaturia (Caldwell). A soldier when boxing was suddenly seized with pain in his loin and died from ruptured kidney. The cause of the lesion in this type of case has been variously explained, and, as usual, the explanations are unsatisfactory in proportion to their number. Küster showed by experiment that it was due to the hydraulic pressure acting through the full vessels and pelvis causing the kidney to burst; but this explanation does not explain a case of a completely torn across kidney, like the case quoted below, nor the cases where only the fibrous capsule or cortex is torn.

Another explanation given by various authorities is that the kidney is caught between the ribs and crest of the ilium or between the ribs and vertebræ. This should give injuries of the muscle and various other organs as well and it is not generally accepted as a sound theory. Again, some authors say that the kidney is attached to the psoas muscle and in cases of a sudden strain thrown on it, the kidney being unyielding, is torn across, whilst the muscle stretches; but this would not account for the great majority of cases where the kidney lies loosely embedded in the perinephric fat.

The lesion is usually subparietal in adults, due, no doubt, to the bed of areolar tissue and fat in which the kidney lies; but in children the perinephric fat is not developed till after 10 years of age, and the kidney being separated from the peritoneum by the perinephric fascia the peritoneum is almost invariably torn in the rupture of the kidney, thus adding to the complications by opening up the abdominal cavity and increasing the mortality, as shown by the fact

that in Morris's statistics six out of seven cases under 10 years of age died. The symptoms are collapse, vomiting, local pain and tenderness, attacks of ureteral and renal spasm, and disturbance of renal function, hæmaturia, and diminution of urine. The collapse is usually profound and of long duration. The face is pale and drawn and covered with sweat. Temperature is subnormal, the pulse quick and small, and the extremities cold. The aspect of the patient for some hours is discouraging in the extreme. In some cases ecchymoses appear at the root of the penis and over the external abdominal ring (Morris). Testicular retraction due to the severe hæmaturia and the passage of clots in the ureter have been observed. A tumour from the extravasation may occur rapidly, rounded in form and dull to percussion, and fluctuation may be felt. Hæmaturia may be due to simple contusion of the kidney or by transudation. After the effects of the shock have worn off the local pain continues and is increased on respiration. The pulse becomes sharp and rapid, the skin hot and feverish, the tongue furred, and there is nausea with vomiting. The complications are numerous and dangerous: (1) continuous and excessive extravasation of blood, (2) peritonitis, (3) inflammation and suppuration of the perinephritic tissues, (4) occlusion of the ureter, (5) traumatic nephritis, and (6) extravasation of urine. Of these, hæmorrhage is the most common cause of death.

Treatment.—The effects of the shock must be combated by absolute rest, and the patient kept warm; stimulants and solid food avoided and fluids limited. The bowels should be well moved by enemata and morphia given to relieve pain. Ergot is sometimes given to relieve the hæmorrhage, but its use is of more than doubtful efficacy. No attempt should be made to at once remove the blood-clot from the bladder, as the urine has a solvent action on it. As regards operation, each case must be decided on its merits; but Morris advises early interference. In this connexion it is interesting to note that the first recorded case of nephrectomy for ruptured kidney was by the late Dr. Rawdon of Liverpool, on a boy of 12 years, who fell down steps, sustaining a bruise over the right ilium, when it was found that the kidney was almost completely torn across. He died later from cystitis due to attempts to remove the blood-clot from the bladder.[1]

A schoolboy, aged 12 years, was admitted to the Royal Infirmary, Liverpool, on the evening of July 20th, suffering from injuries caused by a fall. While returning to school after dinner in crossing a field he slipped on the wet grass and fell, his side coming into contact with the ground and (perhaps) a small stone. He was shortly afterwards picked up and carried home, being unable to walk, and seen by Dr. G. Gunn, of Neston, who found him in a state of collapse, with a frequent pulse and cold sweats. Vomiting set in and he was put to bed and kept warm. Later a couple of ounces of urine were passed, darkly stained with blood, and a diagnosis of "injury to the kidney" was made, and he was transferred to the infirmary by a motor, a distance of ten miles.

On admission at 9.45 P.M. he was conscious, absolutely blanched, bathed in a cold perspiration, pulse 108 per minute, small and weak, temperature 96·8° F., and respirations 28 per minute. The only injury apparent on examination was a small abrasion on the right side in the anterior axillary line, corresponding to the eighth, ninth, and tenth ribs, and about half an inch wide. There was no hæmorrhage from the skin nor sign of fractured ribs, and the abrasion was evidently caused by the stone. The abdomen, but more especially on the right side, was absolutely rigid and tender, and he complained of pain if touched there, the symptoms being most pronounced in the right hypochondrium. The right flank was absolutely dull on percussion, but there was no swelling or distension. He only complained of pain on being touched. There were no symptoms of renal or ureteral cramp, no ecchymosis at the root of the penis or over the external ring, and no testicular retraction. His condition was so serious that operation was deferred to see if there should be any improvement and ¼th grain morphia was administered hypodermically, while he was packed round with hot bottles and blankets. He complained of severe thirst. At 12 P.M. he was sleeping. At 2 A.M. the pulse had risen to 120 per minute and the temperature to 100·6°. At 3.30 A.M. he was in a critical condition, with symptoms aggravated; and Mr. T. C. Litler Jones being called, decided on immediate operative interference.

[1] Vide THE LANCET, May 28th, 1883.

An anæsthetic (open ether) was administered and an incision was made 1 inch below and parallel to the twelfth rib through the muscles, and on cutting through the transversalis fascia the kidney was found buried in an enormous blood effusion invading the pelvis, diaphragm, and neighbouring organs. On turning out this clot the lower half of the kidney was found completely torn off and lying loose in the clot. (See figure.)

Reproduction of photograph of the specimen after removal.

The vessels attached to the upper portion were at once clamped and ligatured with Van Horn No. 1. catgut and the remainder of the kidney removed. The peritoneum covering it was found intact, and the blood effusion extending behind it over the diaphragm and down into the pelvis was removed as completely as possible, the cavity packed with dry sterile gauze, the muscle layers sutured with Van Horn catgut and the skin with silkworm gut, leaving an opening for the packs. He was then returned to bed, ¼th grain of morphia was administered hypodermically and 4 oz. of salines hourly per rectum. The temperature and pulse-rate dropped immediately after the operation, but later steadily rose till 6 P.M., when they reached a maximum of 101·6° and 156 per minute. He was given small quantities of fluid by the mouth, and first passed urine (4 oz., deeply blood-stained) at 2 P.M. Morphia was again administered at 2 P.M. and at 7 P.M., and the saline continued hourly for 48 hours. The packs were removed 36 hours after operation, under gas, and the wounds repacked.

The after-history was uneventful. The wound healed without any sign of sepsis, and the boy quickly recovered his loss of blood; as the other kidney improved in tone more food was administered. He was discharged from hospital a month later apparently quite strong and well, and since then his progress has been good.

I would like to express my indebtedness to Mr. Litler Jones for permission to publish this case, and his kind assistance and advice on these notes.

Liverpool.

SALVARSAN IN SYPHILIS.

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WE have been using salvarsan, "606," in the treatment of syphilis for over a year, and we think that a short account of our experience may be of value. We have treated and followed up 200 cases which were in the primary, secondary, and tertiary stages.

A Wassermann reaction was always taken before commencing treatment, and again in six months, nine months, and a year. All cases under treatment have given a negative reaction, the reaction having been positive previous to the first injection. Two intravenous injections of salvarsan, "606," have been given in all primary and secondary cases, the injections being at an interval of three weeks, because if "606" injections are given at shorter periods there is great danger, as has been recorded in the French journals (Gaucher, Caravan, and others).

The urine has been examined daily in 20 cases, and this

has shown that arsenic is eliminated after intravenous injection for four days, and in cases of intramuscular injection arsenic is still present up to the twelfth day. Between the first and second injections of salvarsan the patients have been ordered a mercurial inunction, this being continued after the second injection for 20 days in each month for a period of six months. The preparation prescribed is "crème de mercure" (Gordon), as it is easily absorbed and is more cleanly than the official ointment.

None of the cases so treated has had a relapse or has shown symptoms of syphilis, but although at present their Wassermann reaction is negative it is impossible until further time has elapsed to regard them as cures.

We have had no serious accidents to report. In one case soon after the second injection there was an eruption of herpes round the chin and lips and on the tongue, which yielded to the ordinary treatment. Some of the cases presented slight induration at the site of the injection which soon disappeared.

In women we observed that the regular period following the injection appeared a week earlier than usual, and was sometimes profuse in character. In one patient with severe ulceration of the leg iritis occurred, but it was not due to the treatment. The dose administered has varied from 0·4 to 0·6 gramme, according to the condition of the patient.

The injections were done in three ways:—(1) *Subcutaneous.*—This method was quickly discarded as it proved too painful. (2) *Intramuscular.*—(*a*) In neutral solution; this method also proved painful and caused a good deal of induration. (*b*) In the form of an oily emulsion; this proved more satisfactory. (3) *Intravenous*—This method if properly performed is much the best way of administering salvarsan, except in those exceptional cases where it is impossible to find a suitable vein.

The apparatus we used in the intravenous method consisted of a glass cylinder of a capacity of 300 c.c. To this is attached indiarubber tubing fitted with two glass windows. The whole having been sterilised by boiling, a cannula and needle (previously sterilised in oil) are then attached. The apparatus having been filled with saline solution, it is impossible for air to enter at any time during the operation. The salvarsan solution must be prepared *immediately* before use and kept at a temperature approximating blood heat during administration. Chemically pure sodium chloride and caustic soda must be employed for the solutions. The technique is as follows.

Into a narrow-necked graduated glass cylinder of a capacity of 250 c.c., containing about 40 sterile glass beads, 40 c.c. of distilled water at a temperature of 104° F. are measured. The salvarsan, 0·6 gramme, is then gradually added, the tube being vigorously shaken to aid solution. The solution must not show (even when examined by transmitted light) any drop-like or gelatinous particles. To this are added 20 drops of a 15 per cent. caustic soda solution. A precipitate forms which redissolves on the addition of a few more drops of caustic soda solution. The clear yellow liquid is then filled up to 240 c.c. with a 0·5 per cent. saline solution prepared from sterile freshly distilled water. Each 40 c.c. of the solution now contain 0·1 gramme of salvarsan, 200 c.c. contain 0·5 gramme, so the dose required may be accurately ascertained.

An elastic band having been placed on the upper part of the arm the most prominent vein is selected at the bend of the elbow. The site of the puncture is then painted with iodine solution. The apparatus being filled with saline solution care must be taken that all air is expelled. The needle is then run into the vein, when blood will be seen to flow back by the glass window. The elastic bandage is then removed and the saline solution allowed to pass into the vein. If this takes place readily with no swelling at the site of the injection, the salvarsan solution is then slowly added to the saline until the required amount is given. Saline solution is again added until the liquid entering the vein is quite clear.

If swelling occurs at the site of injection it is caused by the needle having pierced the side of the vein; in that case it is advisable to remove the needle and select another vein. The presence of salvarsan solution in the tissues will cause painful induration and sloughing might occur. It may happen that the liquid does not flow freely, the point of the needle having come in contact with the wall of the vein; this is obviated by either raising or depressing the point of the needle.

There should be no local reaction. A general reaction nearly always occurs and varies in intensity according to the condition of the patient and the amount of salvarsan given. During the injection the cheeks generally become pink and some patients complain of a metallic taste in the mouth. An hour or two after the injection there is likely to be a rigor and the temperature may rise to 101°–102° F., with, perhaps, headache and vomiting. This condition quickly passes and the patient feels well soon afterwards. During the last few months we have observed that cases of vomiting have occurred less frequently. Whether this is due to an improvement in technique or the salvarsan supplied by Ehrlich being purer we cannot say. It is hoped by the particular combination of salvarsan and mercury to attain a means of preventing the development of tabes and paralysis.

There can be little doubt that Professor Ehrlich by his recent work has added a most valuable drug to our Pharmacopœia.

CLASSIFICATION IN GYNÆCOLOGY.[1]

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CLASSIFICATION marks the transition of any subject of inquiry from being a mere collection of observations and theories into being a science. In other words, no subject becomes a science until it is sufficiently well known to admit of the logical and orderly arrangement of its details. If this test be admitted, gynæcology is still a very young science, if, indeed, it has yet reached the scientific stage. As an art it has, of course, reached a high level.

The first attempts to give an orderly account of the diseases of women in this country seem to have been made in the later third of the nineteenth century. Thus the third edition of West's "Lectures," published in 1864, and the third edition of Grailey Hewitt's book, published in 1872, both contain traces of arrangement into diseases of the vulva, vagina, uterus and other organs. In 1877 Lawson Tait published a small book with a definite anatomical classification, and the same arrangement was used by Barnes, whose second edition appeared in 1878. From this date until the present time most books on the diseases of women have been arranged on the same plan, though some are conspicuously free from any attempt at logical classification. The object of the present paper is to examine the nature and results of this anatomical classification, and to find out if it is the best that can be made now, as it doubtless was when it came into use.

Though it may have been useful as a "preliminary effort," it is not only an artificial division, but a bad one of its kind, and it has been made worse by faulty application. For a number of conditions which are not conditions peculiar to women have been brought in. Such are the various skin diseases described under the headings "Vulva" and "Mons Veneris"; symptoms like pruritus, and affections of the bladder, urethra and rectum. Naturally the gynæcologist has to treat them; but when he is trying to give a scientific account of diseases of the female reproductive organs he might at least relegate other matters to an appendix. Conditions do not always appear in the appropriate anatomical division. Thus cystocele and rectocele are often called diseases of the vagina, prolapse and retroversion being placed amongst diseases of the uterus, while all four are really abnormalities of the pelvic connective tissue. These are all avoidable errors in the application of the system.

But the division itself is to blame for splitting up and multiplying diseases. Gonorrhœa, for example, is one condition; but in books it is described in different sections under vulva, urethra, vagina, cervix, uterus, tubes and ovaries. Thus facts which should be together are scattered abroad. Further, local pathological processes are made into separate diseases, and names are given to them such as

[1] A paper read before the North of England Obstetrical and Gynæcological Society on Feb. 17th, 1912.

vaginitis, endocervicitis, endometritis, metritis, parametritis, perimetritis, salpingitis, ovaritis. These are described, each with its symptoms, signs, diagnosis, prognosis and treatment. "It is a dull and obtuse mind," said Calvin, "that divides in order to distinguish; but it is a still worse which distinguishes in order to divide." The older gynæcological writers may not have distinguished between ovaritis and salpingitis with the conscious intention of dividing them, but their writings have effectively separated these processes in the minds of their followers. Nor can the use of the anatomical system be said to be successful in practice. Senior students and young graduates constantly remark that while they can make useful progress in medicine, surgery and midwifery, they are in despair about the diseases of women. Interest, intellect and industry are not wanting; the method is alone at fault. The subject presents no unique mystery. It is badly taught simply because writers and teachers persist in using the anatomical arrangement. How can the student grasp the connexion between vulvitis and salpingitis when they are separated by hundreds of pages in text-books and by the lapse of weeks in lecture-rooms? How can he help regarding ovaritis as a disease when it is described as one? How can he escape the conclusion that prolapse is a uterine trouble when it is placed among diseases of the uterus? Various other bases might be taken for the main divisions of a new system, but what is required is a natural arrangement.

The word "cancer" at once calls to mind a number of resemblances between all cases of cancer; but the term "disease of the uterus" does not suggest to the mind any resemblances between diseases of the uterus except that of place. The word "infective" conveys a number of facts concerning all cases of infection; but the word "vagina" tells nothing about any case of disease of the vagina except the site of the lesion. In short, the knowledge that a condition affects the broad ligament, the uterus or the ovary conveys much less information than the knowledge that the condition is an injury, a tumour or a malformation. In general terms, the important feature of a disease is not its site, but the way in which it departs from health—namely, its pathology. The word pathology must not be taken in its narrow sense of morbid anatomy, but must include function as well as structure, morbid processes as well as lesions. Does it not follow that the main divisions of any natural classification of diseases should be based on pathological resemblances and differences, minor features, such as the position of lesions, being used only in the subdivisions of the system?

Attempts to bring into use pathological main groups of diseases of women have been made in this country by four authors: David Berry Hart, J. W. Ballantyne, W. Blair Bell, and the present writer. In 1893 Hart read a paper to the Edinburgh Obstetrical Society on the Pathological Classification of the Diseases of Women, with a Plea for the Revision of Current Views.[2] He suggested 11 headings as follows: (1) Congestive (vascular ruptures included); (2) Hypertrophy; (3) Atrophy; (4) Traumatism; (5) Simple Inflammations; (6) Micro-organismal (includes pathological versions); (7) Herniæ (prolapse, &c.); (8) New Growths; (9) Displacements (inversion only); (10) Developmental Errors; and (11) Neuroses.

Ballantyne published his "Essentials of Gynæcology" in 1905. His classification of the diseases of women was in 10 headings. He put hypertrophic and atrophic states together, although they are opposite in nature. He included extra-uterine pregnancy, which is midwifery; and also sterility and menstrual anomalies, which are symptoms rather than primary conditions. Hart and Ballantyne both include "neuroses," which would generally be regarded as disorders of the nervous system, rather than of the female reproductive organs.

In his "Principles of Gynæcology," published in 1910, Dr. Blair Bell also uses ten headings. One of these is "Disorders of the Normal Physiological Conditions in Relation to Menstruation," and this, like Ballantyne's "Menstrual Anomalies," deals with symptoms, not with primary conditions. Another heading is "Disorders of the Normal Conditions in Relation to Conception," which, again, is midwifery. Various conditions which are not primary disorders of the female reproductive organs are included under the heading, "Allied Morbid Conditions."

Thus Ballantyne's and Blair Bell's arrangements are not faithful to their main basis of division, and they poach on obstetrical ground. Hart's plan, if the heading "neuroses" be omitted, is free from these defects; but it suffers with the others from the fact that the student cannot easily keep in mental view so many as ten groups of conditions.

For some years I have been using six main divisions both in clinical teaching and in my own systematic work.[3] They were suggested by the arrangement of specimens introduced by Professor Lorrain Smith into the pathological museum of the University of Manchester, and thus have the sanction of professional pathologists. They are: (1) Developmental Errors; (2) Vascular Changes; (3) Mechanical Conditions; (4) Results of Infection; (5) Progressive Conditions; and (6) Retrogressive Conditions.

1. "Developmental Errors" must, for gynæcological purposes, contain two sub-groups: (*a*) congenital errors; and (*b*) errors in development at puberty, for the reproductive organs have two phases of development, one embryonic and fœtal, the other occupying the years immediately preceding and following puberty.

2. "Vascular Changes" includes active and passive hyperæmia as recognised at first by symptoms and later by hypertrophy and fibrosis respectively. This group also includes varicosity of the veins in the pelvis and hæmorrhage into the pelvic organs, the pelvic cellular tissue, and the peritoneal cavity.

3. "Mechanical Lesions" is a large and obvious group containing injuries, displacements, and herniæ.

4. "Results of Infection" is a main division which should be subdivided according to the organisms present in each case. In this group the few cases of primary pelvic parasitic disease may be included without gross impropriety.

5. "Progressive Conditions" includes overgrowths, cysts and new growths. Perhaps this group should be divided. But it is hard to draw the line between hypertrophy and adenoma of the endometrium or between innocent and malignant new growths.

6. "Retrogressive Conditions" occur mainly in connexion with the menopause, but the reproductive organs share in the general changes of senility.

Further, there are errors in the retrogressive changes which are characteristic of normal menstruation, ovulation and involution. I have found that the use of these main groups has certain advantages. The division is logical and is based on the most important resemblances and differences between morbid conditions—namely, the pathological. It is familiar to students of medicine, and the headings are so few that they can easily be remembered. If the student is able to place a case in one of these groups, he has made a definite step towards a complete diagnosis and has gained some useful information about the patient. But it is, of course, a division of conditions, not of patients, for a woman can have two or more conditions at the same time (infection and new growth, for example).

Such a division has the further advantage that it does not magnify symptoms and pathological processes into diseases. Nor does it lead to confusion between primary conditions affecting the reproductive organs and general diseases such as phthisis, rickets, anæmia, and myxœdema, which often lead to the appearance of gynæcological symptoms. Such symptoms of general diseases may well, like diseases of the female bladder, urethra, and rectum, be mentioned by the gynæcologist in teaching; but it is better that they should be kept out of any classification of diseases of the female reproductive organs which aims at being scientific and logical.

Those who have written text-books and arranged courses of lectures according to the anatomical plan can hardly be expected to approve of the changes now advocated, though the use of pathological main groups saves much space and prevents much repetition. Again, students taught to use a pathological main division, unless well informed and agile in mind, might easily fail to please examiners of the anatomical generation. Thus mental inertia and the fear of the examiner tend to perpetuate the anatomical grouping. But it cannot last much longer, and the writer hopes to see the day when it will not be used in any course of lectures delivered in this country nor in any book which holds a place on the British market.

Manchester.

[2] Transactions of the Edinburgh Obstetrical Society, vol. xix. and vol. ii. Edinburgh Hospital Reports, 1894.

[3] Manual of Diseases of Women. William Green and Sons. 1910.

THE SEX OF THE LARVÆ OF MOSQUITOES AND OTHER EXPERIMENTAL WORK.

BY H. A. ADIE.

(From the Malaria Laboratory at Lahore.)

THOSE interested in medical entomology have not been able, in spite of the large amount of work done on anophelines alone, to distinguish male from female larvæ in the case of mosquitoes. Working with anophelines I have succeeded in solving this difficulty.

On each side of the sixth abdominal segment of the anopheline larva can be made out, in males, a brownish oval tumidity. This can be seen with a two-thirds or a hand lens; with practice the latter is sufficient for a fair-sized larva. With a two-thirds it can be recognised on the third day. The brownish oval tumidity is the pear-shaped testis with its hard sac. On dissection it is found to be connected by a vas with a vesicula and ductus. It contains spermatozoa both formed and undeveloped. This test decides the question of the male sex. Twenty-four prognostications have come out correct on completion of metamorphosis. On dissection ovaries and spermatheca are quite clear in the female pupa, and in the case of the female larva rudimentary ovaries can be seen.

In the culex larva the testis has not the conspicuous brown colour or the hard sac, and therefore is not so recognisable.

The question has arisen, Are M. culicifacies and M. listoni distinct species or races? It is known that in some localities—e.g., Punjab plains—pure culicifacies is very common, and pure listoni only met with occasionally (Gujrat and Amritsar). In other localities, such as the Kangra and Kulu Valleys, pure listoni is very common and culicifacies a curiosity. The higher valley (Kulu) has no culicifacies. Where both are met with, as in the lower parts of the Kangra Valley, forms were obtained which diverged from their type markings, and it was sometimes difficult, if not impossible, to say to which species a particular specimen belonged. James and Liston, in their standard work on Indian anophelines, recognise this. "Indeed, it would seem that in a few places (e.g., Bombay) the prevailing variety is almost exactly intermediate between the two species." Both breed in running water and are malaria carriers, but there are some small differences in the larval characters, and in the resting attitude of the adults. In this connexion reference might be made to the African malaria carrier, M. funesta, which closely follows the description of the above two species.

From the ova of the adult listoni from the Kangra Valley and adult culicifacies from Ferozepore male and female imagines were bred out. Then from the hatched-out insects males and females of culicifacies and listoni were kept with females and males of listoni and culicifacies under as suitable conditions as possible in the cold weather. It might be pointed out that the necessary arrangements for artificial temperatures, feeding, and watching generally, required the strictest attention day and night. The mean temperature in Lahore at the time was about 55° F.

About 17 days after pairing a female culicifacies, which had been kept in a jar with a male listoni, was found to have died during the night. She was immediately dissected and seen to contain ova of apparently full size but less than the usual number. As far as could be made out they had the characters of culicifacies ova. The spermatheca did not show spermatozoa. The coming-on follicles were at figure 4 of Christophers's scale.

On Dec. 29th, 26 days after pairing, a female listoni, which had been kept in a jar with two male culicifacies in succession, was accidently killed and immediately dissected. She had less than the full number of apparently full grown ova, and concerning these a most interesting point was observed—viz., while the majority of the ova were of the listoni type, the upper surface having two fringed oval areas, a few were of the culicifacies type, the upper surface being one continuous fringed area; also one intermediate form was observed. In this case as well the spermatozoa could not be recognised. The coming-on follicles were at figure 4, Christophers's scale.

In a third experiment, male listoni and female culicifacies, the female after 22 days was found sprawled and dissected. She had only about 30 ova of culicifacies character, and not full size, but floats were present. The spermatheca was apparently empty.

Of course, it was unfortunate that the eggs could not be hatched out, but other experiments are in progress. The presumption of mating is probable, especially from the evidence of the ova in the second experiment.

The objections still outstanding are the apparent absence of spermatozoa from the spermatheca, and the possibility of parthenogenesis. In the consideration of the former objection I might point out that it has often been the experience in routine dissections in this laboratory to find, in the case of insects bred in captivity, less than the full number of ova and no spermatozoa. As regards the latter objection, so far as dissections of anophelines here have shown, we have not found egg formation in virgins.

Lahore.

ABSCESS OF THE LUNG AND LIVER: SIMPLE CURE OF A CHRONIC CASE BY THE UPSIDE-DOWN POSITION.

BY W. E. McKECHNIE, M.B., CH.B. EDIN.,
MAJOR, INDIAN MEDICAL SERVICE.

THE following case is recorded to show how a serious and dangerous condition of long standing may be cured by very simple means.

A boy of 14 had coughed up pus day and night for five years. He had had some acute illness previous to the establishment of this condition. When I saw him he was stunted in growth and much smaller than his younger brother, having grown very little since the beginning of his illness five years previously. The parents had given up hope of cure, as he had undergone much treatment without any benefit. The amount of pus coughed up in 24 hours averaged about a teacupful. It was of creamy consistency and varied in colour from a brownish-liver colour to a darkish yellow; it had only a faint smell. On physical examination the base of the right lung was dull, the dulness being continuous with that of the dome of the liver; breath sounds were nearly absent, but moist râles were heard higher up; the diaphragm moved only slightly on the affected side.

From the character of the pus, the practically aseptic condition, and the physical signs, I diagnosed liver abscess with perforation of diaphragm and pleura and secondary abscess in the base of the lung, with adhesion of lung, liver, and pleura to the diaphragm in the neighbourhood of the perforation; with intermittent partial evacuation of the cavities in the liver and lung *viâ* the bronchi and trachea. Fig. 1 shows the condition diagnosed, and it is evident that

FIG. 1.

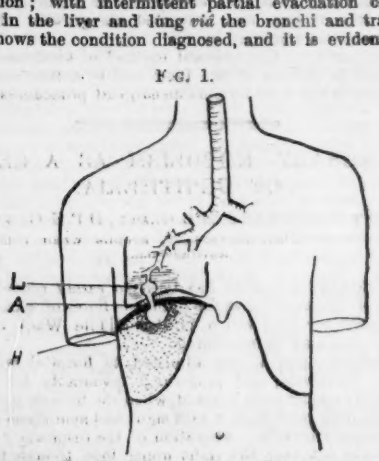


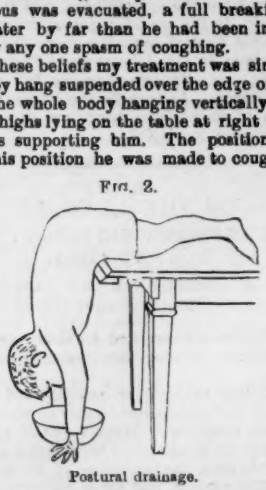
Diagram showing site of abscess cavity. L, Lung surrounding abscess. A, Adhesions between pleura and diaphragm. H, Liver surrounding abscess, adherent to diaphragm.

if such was truly the actual condition there could be little hope of such cavities healing under ordinary circumstances, as the force of gravity would prevent complete evacuation of so complicated a cavity at such a hydrostatic depth by the simple act of coughing, especially if the diaphragm were anchored to the lung and liver so as to diminish its squeezing

expulsive force. It appeared then that the cavities were only partially emptied by fits of coughing when, after filling up, the pus began to rise in the bronchi, causing irritation by its hydrostatic pressure on the lung and liver and its presence in the healthy parts of the bronchi. That this surmise was probably correct was shown by the fact that when I began treatment by inverting the patient at once a very large quantity of pus was evacuated, a full breakfast cupful—a quantity greater by far than he had been in the habit of evacuating by any one spasm of coughing.

Acting on these beliefs my treatment was simplicity itself. I made the boy hang suspended over the edge of a table, head downwards, the whole body hanging vertically upside down, the legs and thighs lying on the table at right angles to the body and thus supporting him. The position is shown in Fig. 2. In this position he was made to cough and squeeze

FIG. 2.



Postural drainage.

his chest till no more pus came out. By this means the abscess cavity was completely emptied, and he was made to repeat the process five or six times a day. At first he got rid of large quantities of pus, but it rapidly diminished, and in about six weeks he ceased to have pus and was cured. His progress was remarkable. The whole boy altered, and a year afterwards he had grown several inches and caught up his younger brother. He became active, bright, and cheerful, and was able to do his lessons with ease, instead of being very backward as he had been before. I think this is a good example of a simple application of the principle that we should allow the force of gravity to drain abscesses. This simple procedure cured in six weeks, without operation or pain, a condition which had lasted five years, had baffled other modes of treatment, threatened the life of the patient, made it a misery, and prevented his growth. No other treatment was employed by me.

I suggest that this postural method of treatment should be tried in abscess of the lung and bronchiectasis before resorting to the more formidable surgical procedures.

PULMONARY EMBOLISM AS A SEQUEL OF DIPHTHERIA.

BY D. STEWART, M.B.GLASG., D.P.H.CAMB.,
LATE MEDICAL SUPERINTENDENT, MIDDLE WARD HOSPITAL, MOTHERWELL.

PULMONARY embolism has been so rarely recorded as a sequel of diphtheria that the following notes of a case which was under my observation in the Middle Ward Hospital, Motherwell, may be interesting.

A female, aged 4, was admitted to hospital with mild faucial diphtheria, and progressed favourably till after a fortnight's residence in hospital, when she became moderately feverish, very restless, and with signs and symptoms pointing to pulmonary trouble. Alteration of the respiratory murmur was made out over the right upper lobe, though from the increasing restlessness examination was difficult. Pneumonia was provisionally diagnosed, but the child grew very rapidly worse, with increasing lividity, restlessness, and respiratory embarrassment. Death took place within 24 hours of the first appearance of symptoms.

Noteworthy points in the case were the mildness of the primary angina and the suddenness of the onset of the fatal sequel—the pulse-rate rising from 108 to 140, and the respiratory rate from 24 to 40 in an hour. Also the temperature was not raised proportionately to the pulse and respiration rates. These points and the quick fatal issue combined to make me doubt the accuracy of the provisional diagnosis, especially as thorough auscultation had been impossible. Permission for a post-mortem examination was obtained, and a large infarction implicating the upper right lobe was found. Some dilatation of the right side of the heart was present but no gross valvular lesion.

Ransome and Corner in an article in THE LANCET of Jan. 14th, 1911, p. 94, reviewed nine recorded cases of gangrene of limbs during convalescence from diphtheria. In one of these cases, recorded by Poupon,[1] embolus in the popliteal artery was revealed by the necropsy and pulmonary embolism was diagnosed during life, but permission was not given to examine the lungs at the necropsy.

Cerebral embolism secondary to endocarditis of the left side of the heart and causing hemiplegia has been recorded fairly often in diphtheria (69 cases in literature according to Rolleston, *Practitioner*, January, 1909, p. 114), but pulmonary embolism resulting from right-sided endocarditis is rarely heard of in this connexion.

Cambuslang, N.B.

Medical Societies.

ROYAL SOCIETY OF MEDICINE

CLINICAL SECTION.

Electrocardiograms.

A SPECIAL meeting of this section was held on March 20th, Dr. SAMUEL WEST, Vice-President, being in the chair.

Professor EINTHOVEN (Leyden) gave a demonstration based on Observations of the Movements of the Heart by Means of Electrocardiograms. This was illustrated by lantern slides of the records of actual cases. He pointed out that muscular contraction and action current are dissimilar, but related to one another. Contraction is a mechanical action, but action current an electrical phenomenon. Electrocardiograms showed that the pulse is an imperfect guide to cardiac action. Differences in magnitude of the pulse do not necessarily correspond to differences in the strength of the contractions of the heart. The ventricles might contract forcibly, and yet a feeble or no pulse be produced by that contraction, because at the time the left ventricle is insufficiently full. This is the case when the ventricular contraction is not preceded by a contraction of the auricles. It could be shown also that in auricular fibrillation the irregularity of the pulse is not caused by irregularity of the ventricular systoles, but by irregularity of those of the auricles. The *pulsus alternans*, in which every second beat is small and feeble, is probably explained by slight changes in the strength of the ventricular contractions. A negative auricular effect, as shown on the electrocardiogram, is probably quite as valuable as a positive one. Tachycardia may exist, and be demonstrable by the electrocardiogram, but the pulse may not be rapid. The work of the heart cannot be judged by the pulse. By experiments on dogs, by which he had estimated the ventricular pressure, he had shown that this is related more closely to the electrocardiograms obtained than to the state of the pulse. The differences in the degree of contraction of the heart may be small, while the differences in the size of the pulse may be very great. It is possible to judge the condition of the heart muscle with greater accuracy by means of the electrocardiogram than by pressure curves obtained from the pulse.

Dr. FLORENCE BUCHANAN gave a demonstration on certain experimental observations which she had made on the heart movements of hibernating animals by means of electrocardiograms. In 11 dormice she had found that during awakening from hibernation there was dissociation of the auricular and ventricular contractions. When the animal was very torpid, showing no signs of respiratory movements for several consecutive minutes and having a pulse-frequency of from 12 to 30 a minute, the records showed only ventricular effects recurring at irregular intervals, the more irregular the lower their frequency. Apparently when the

[1] Le Progrès Médical, vol. cixiii., p. 100.

animal was in its deepest sleep only the ventricles were beating. When the ventricular frequency increased to 40 per minute auricular extra-systoles started, appearing at long irregular intervals, and each well marked and of long duration. These gradually increased in frequency and became more regular, and usually by the time the ventricular systoles had reached 100 per minute the auricular extra-systoles were equally frequent. At the time during which the auricular effects were overtaking those of the ventricles the ventricular effects were apt to become irregular, one or more being dropped, giving records like those of complete heart-block produced by vagus stimulation in other mammals. These auricular extra-systoles did not influence ventricular frequency. True auricular systoles only became visible as the season advanced, or perhaps as the number of times the animal was roused from hibernation increased. They had never occurred while the ventricular frequency was less than 58 per minute. At first they did not always regularly precede each ventricular systole. Experiments on bats served to show that evidence of heart-block, complete or incomplete, was likely to be forthcoming in those animals during hibernation.

Dr. JAMES MACKENZIE said that electrocardiograms had afforded an admirable means of accurate diagnosis in cardiac disease, and had led to great advances in our knowledge of many obscure affections of the heart. Some years ago he had attempted to explain certain forms of arrhythmia by ascribing them to contractions starting in unusual positions, and it had been very gratifying to him when Dr. Lewis had demonstrated by electrocardiograms that the auricle in such cases had gone into fibrillation. This method had also explained some cases of tachycardia, when the auricles were beating faster than the ventricles. It had helped with regard to the management and treatment of patients. He regarded the *pulsus alternans* as a condition which is not rare but always of very grave significance.

Dr. THOMAS LEWIS paid a high tribute to Professor Einthoven's work. He said that the profession was indebted to Professor Einthoven for a perfected instrument and for a method of unrivalled precision. First upon the list of their indebtedness to this instrument he would place the almost universal corroboration it had given to the findings by another method which was also new and was devised by Dr. James Mackenzie. The importance of this corroboration could scarcely be exaggerated, for the method to which he referred—the analysis of venous pulse curves—was one which could be applied by all who practised medicine. He illustrated his contention by reference to the interpretation of such irregularities of the heart's action as were produced by premature contractions or extra-systoles and by heart-block. The analysis of cardiac irregularities was a chapter of medicine fast reaching its close. It was but rarely that the galvanometer failed to disclose the nature of a disordered heart action. In the majority of instances its answer was immediate and decisive. Of cardiac irregularities one had been spoken of by Dr. Mackenzie, which, on account of its frequency and its important influence upon the life-history of the patient, had commanded close attention. He referred to auricular fibrillation. Among the first electrocardiograms of auricular fibrillation were those taken by Professor Einthoven, and it was his instrument which introduced us to auricular fibrillation as a clinical phenomenon. We were indebted to this galvanometer for our knowledge of the site of origin of the heart beat. It had shown us that in pathological states other centres of impulse formation were active in the muscle, and it had located these centres in a remarkable fashion. It was possible to-day to state, not only that a new impulse arose in auricle or ventricle, but, within certain limits, the part of the individual chamber in which the impulse had its birth could be defined. The new method had very materially advanced our knowledge of paroxysmal tachycardia; it had shown us that those crises arise, not as the result of simple disturbances of innervation, but as an outcome of new and rhythmic impulse formation in portions of the heart remote from the pacemaker. It had transpired that the galvanometer could detect not only functional disturbances of the main auriculo-ventricular bundle, but also similar defects in the main branches of it. This was a discovery of fundamental importance in the study of heart affections. In his original paper Professor Einthoven had pointed out certain relations between electrocardiographic curves and right- and left-sided ventricular hypertrophy. A great deal of evidence was now forthcoming in support of his original contention that the relative weights of the two ventricles could be estimated by this means. It would be needless for him to emphasise the importance of these observations. The examples he had given would suffice to illustrate the unquestionable and far-reaching value of the method. Electrocardiography was a growing science. Instruments were being installed in all lands where pathology and clinical medicine were actually studied. The value of the method had received immediate and universal recognition. Curves were shown to illustrate the various points.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Exhibition of Specimens.—Extra-peritoneal Dermoid Cyst.—Cæsarean Section in a Case of Dystocia.—Pathological Classification of the Diseases of Women.

A MEETING of this section was held on March 7th, Dr. AMAND ROUTH, the President, being in the chair.

The following specimens were shown:—

Dr. H. A. LEDIARD (Carlisle): (1) Sacral Teratoma in an Infant two days old—Operation and Recovery; and (2) Large Warty Fibroma of the Labium.

Dr. H. BRIGGS (Liverpool): (1) Fibroid of Uterus of Unusual Character; and (2) Large Placenta in a case of Ectopic Gestation Three Months beyond Term.

Dr. CLIFFORD WHITE: Fœtus with Congenital Hereditary Graves's Disease.

Dr. C. HUBERT ROBERTS: (1) Demonstrations under the Epidiascope of a Three Months' Abortion, the Placenta undergoing marked Calcareous Degeneration; and (2) Sections of Ovarian Concretions (Hæmatoliths) and of the cyst wall in which they were contained.

Dr. LEDIARD read a short communication on a case o Extra-peritoneal Dermoid Cyst, which had suppurated, occurring in a patient, aged 26, who was operated upon in 1906. The tumour was of the size of a six months pregnancy and had been felt for four months. The peritoneum was raised by the growth, and incision of the abdomen revealed a silvery-surfaced tumour. The cyst contained sterile pus to the extent of two pints. Traction and finger dissection sufficed to extract the cyst without damage to the ureter or other organs. The cyst was thick-walled for the most part, and contained four teeth, nodules of cartilage, and some hairs. The patient made an easy recovery and was at present in good health—i.e., six years after operation.

Dr. HENRY BRIGGS read a short communication on Cæsarean Section in a case of Dystocia due to Loops of Cord round Fœtus at Term. He remarked that a short umbilical cord, whether absolutely short or relatively short, by being coiled round the fœtus may arrest descent and prevent engagement of the head in the pelvic brim. Such extreme cases were very rare. In Dr. Briggs's case the patient, a young woman aged 22, was admitted to the Liverpool Maternity Hospital at the full term of her third pregnancy at 10.30 A.M. on Jan. 28th, 1912. Labour had been in progress 10½ hours, and the cervix admitted the finger. Pains were slight. On the following day the membranes ruptured spontaneously, and at midday the cervix was half dilated. At 11 P.M. the same day the cervix was still incompletely dilated and the head was still above the brim. The general condition of the patient remained good, violent expulsive pains being relieved by an injection of scopolamine and morphine. The patient was first seen by Dr. Briggs after she had been 43 hours in labour, and up to the completion of the fifty-second hour the conditions seemed consistent with the birth of a living child when the cervix was fully dilated and the head engaged. After the patient had been 52 hours in labour she was examined under an anæsthetic, and the fœtal head palpated with the hand in the vagina. The sagittal suture lay nearer the pubes (Litzmann's obliquity); the disengaged head receded readily above the brim, as if its ascent were easier than its descent; the manipulation of the head elicited the sensation of its being held from above, and the head persisted in lying transversely high up and inaccessible. The fœtal heart was beating normally. The obstruction within the uterus was beyond any safe method of attack from below. Patience in awaiting natural efforts had been adequate, if not excessive. It was therefore decided to effect delivery of the child by Cæsarean section. It was then found that there were three complete collar-like, and appreciably tight, coils round the

neck. From the navel to the neck the cord passed under the right shoulder and across the back of the chest and over the left shoulder. The pallor of the child when first delivered was alarming. After loosening the coils of cord the child began to breathe, and was still thriving. Dr. Briggs was of opinion that delivery by forceps or version would have been difficult, if not impracticable, and that the life of the child entirely rested upon the treatment by Cæsarean section.

Dr. W. E. FOTHERGILL read a short communication entitled "A Plea for the Use of Pathological Classification of the Diseases of Women."

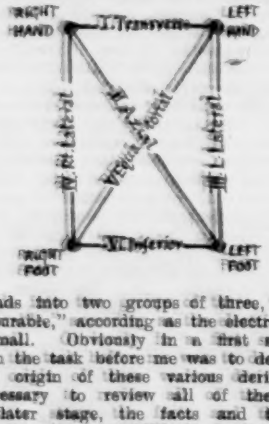
CHELSEA CLINICAL SOCIETY.

The Human Electrocardiogram.

THE annual clinical debate of this society, dealing with Disorders of the Circulatory System, was continued on March 19th at the Physiological Laboratory of the University of London, South Kensington, Dr. MANSELL MOULLIN being in the chair.

Professor WILHELM EINTHOVEN, of Leyden, read a paper on the Various Forms of the Human Electrocardiogram, which will be found fully illustrated in this issue of THE LANCET.

The discussion was commenced by Professor A. D. WALLER, who said: It has been a great pleasure to all of us, and to me especially so, to listen to Professor Einthoven's lucid description of his state of mind and knowledge in this matter of the electrocardiogram. We all know the great share that he has taken in the development of our knowledge of this subject, and how his beautiful instrument, the string galvanometer (I wish it had a more beautiful name), has transformed the electrocardiogram of the laboratory into a common object of the hospital, where it is called to play its part among the time-honoured methods of clinical diagnosis. Like all new methods it has its detractors who know too little, and its zealous advocates who say too much. But in spite of both kinds of extremists I think this method will render real service to clinical medicine; indeed, as you have just heard, it has already done so. Obviously, time will not allow me to consider all the developments that have entered into Professor Einthoven's exposition. But I should like to take advantage of his visit to clear up a difference between us as regards the relative effectiveness of the several possible leads from the heart by means of the hands and feet. There are six such leads—viz.,[2] I, transverse; II, axial; III, left lateral; IV, right lateral; V, equatorial; and VI, inferior—summarised diagrammatically in the schema shown. In my first description of 1887 I classified



these six leads into two groups of three, "favourable" and "unfavourable," according as the electrical pulse was large or small. Obviously in a first survey of the matter, when the task before me was to demonstrate the physiological origin of these various derivation effects, it was necessary to review all of these six cases. But at a later stage, the facts and their common principle having been established, it became possible and necessary to simplify the six original premises. Professor Einthoven, proceeding from the observed fact that the difference in case VI (inferior) is very small, and that there is accordingly a very small difference between III and V and between II and IV, treats that difference as negligible, and reduces the experimental cases from six to three by treating the two lower limbs as equipotential. In this way, regarding the two lower limbs as one limb, he eliminates cases VI, IV, and V, leaving cases I, II, and III, which afford three cardinal magnitudes from which he calculates the position of the heart. This simplified scheme may be represented by a triangle thus, or thus, and for purposes of calculation as well as for clinical investigation is obviously convenient, although it does not take into account the small difference of potential between right and left foot.[3] In Einthoven's first account of the matter in 1895 he agreed with me in every particular, but a few years later, in 1908,[4] he demurred to my reckoning the left lateral—i.e., III—as an "unfavourable" lead. He selects it as one of the three positions I, II, and III, and presents as a law that the magnitudes II − I = III, or I + III = II—i.e., he decomposes the axial difference of potential into its transverse and longitudinal components. I accept this mode of stating the case as being theoretically correct, but I also adhere to my own statement of "favourable" and "unfavourable" combinations, reckoning the left lateral with the latter. In the great majority of normal cases [illegible] found the left lateral III much smaller than [illegible] lateral IV, and the equatorial V much [illegible] axial II. Otherwise stated, I present in [illegible] diagram of 1887 the left hand in combination with the right foot as the "bad hand," and the [illegible] "good hand." The two unfavourable [illegible] and equatorial, are approximately [illegible] magnitude than the two favourable [illegible] and axial, which likewise are approximately [illegible] is hardly necessary to add that [illegible] is smaller than any other. [illegible] following example of his equation—[illegible] voltages of R:—II (0·0013) − I (0·0[illegible] Obviously in this case the left lateral [illegible] than either the transverse I or the axial II. [illegible] obtained this year (1912), as well as the first [illegible] of 1887-90, are of a similar order. They [illegible] statement as to the favourable and unfavourable [illegible] 1887-90, and bear out the statement contained in [illegible] Einthoven's trio. Thus in the subject now under observation the values of R in Einthoven's trio are:—I (0·0010), II (0·0014), III (0·0004). Cases are indeed to be met with in which this first ventricular spike (R or QRS) is larger in III than in I; others in which it is negative instead of positive, and if time permitted I should have an explanation to offer of this which would further justify my placing case III in the unfavourable group. Einthoven has said that I probably did so from having mistaken T for R—i.e., a second for a first ventricular wave. But I can assure him that there was never the smallest risk of my falling into this error—the double ventricular movement was clear to me from my very first observations; what troubled me at that time with the capillary electrometer was the *direction* of the first phase, which sometimes appeared to be positive, sometimes negative. Thanks to his "string galvanometer" this has been cleared up; we see readily enough on the records that the first phase is sometimes positive, sometimes positive-negative, sometimes negative, and that this is especially the case in left lateral records (III). Lead III is, I believe, Professor Einthoven's favourite lead, and it is also mine, for the reason that it is a borderland case and the most variable in form of all the six normal cases. And it is the case of most importance to study

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under normal conditions as a preliminary to the study of pathological records. The first ventricular wave (Einthoven's wave *R* or *QRS*) in lead III presents the following varieties of form in various normal subjects—

and with a rather slow-moving string this last form may appear, i.e., purely negative, in striking contrast to the first form in which it is purely positive. I do not stop for any explanation, but go on to say that clinically this apparently negative response of the left lateral position has been given as characterising (1) cardiac neurasthenia; (2) hypertrophy of the left heart; and (3) a lesion of the right limb of the auriculo-ventricular bundle of Kent and His. Now it may mean any or all of these lesions—that is not for me to say; I only enter a caveat against concluding too hastily what it means, since it commonly presents itself in perfectly normal subjects. Of half a dozen random cases recently tested in this laboratory, three present it and three do not. And I am convinced that those three first cases are not cases of cardiac neurasthenia, or aortic disease, or lesion on the right limb of the a.v. bundle, and I know that at least one of the three persons who do not present it has well-marked hypertrophy of the left side. I have learned to recognise when to expect this pronounced negative effect; it occurs in any case where the transverse is larger than the axial effect; it does not occur when the transverse is smaller than the axial effect, and I think that Professor Einthoven will be glad to recognise in this an illustration of his normal equation I + III = II. I do not forget that this is a meeting in a physiological laboratory; I have confined my remarks to a particular physiological bearing character of the first ventricular wave *R* because its consideration strikingly illustrates the need of a physiological basis as a preliminary to treatment. I shall not trespass upon the clinical problems to be dealt with by other speakers, Dr. Lauder Brunton, Dr. Wells, Dr. Halls Dally, who have special knowledge of the clinical aspects of this manifold problem viewed from the medical side. I have been particularly gratified by the presence here to-day of Dr. Thomas Lewis. I have not forgotten the zeal and ability with which he first addressed himself to Einthoven's string galvanometer in this laboratory, and the acumen with which he has followed it up in the clinic. The extension of the method as a clinical method may be said to have been principally due to the enthusiasm of Dr. Lewis, and to the special clinique which he conducts at the University College Hospital. Auricular fibrillation, or, as I should have preferred to hear it called, auricular asystole, as everyone knows, thanks to Dr. Lewis, is now as familiar on the human subject in hospital as it is upon animals in the laboratory.

Dr. THOMAS LEWIS said that it had been a peculiar pleasure to him to have seen and heard Professor Einthoven expounding his methods and his views to an audience of his countrymen. Professor Einthoven had given them a splendid address, and had provided them with much food for reflection. Continuous advance in knowledge was slow; the chief progress was in steps, and a step was the result of the introduction and application of a new method. Einthoven was one of those rare workers who had devised such a method. He wished to speak more especially of the assistance which the new method had given to students of disordered heart action. In the study of arrhythmia it had proved invaluable, so much so that this chapter of clinical medicine was rapidly closing. It was only in the rarest instances that the galvanometer failed to provide an exact analysis of the sequence of cardiac chamber contraction. Professor Waller had uttered certain warnings in regard to the value of the method in the examination of hearts which beat regularly, and had especially criticised conclusions which dealt with the variations in the shape of the ventricular complex. He concurred with Professor Waller, in that he fully recognised the necessity of a full study of the normal electrocardiogram before dogmatic assertion in respect of the abnormal curves could be justified. Rash statements had undoubtedly been made, but not by clinicians working in this country. Nevertheless, and after a close study of the subject which had lasted for four years, he could speak with confidence of the value of electrocardiograms taken from patients with regularly beating hearts. Supposing that the limits of the several peaks and depressions were ascertained in a series of 50 or more subjects, and supposing that in a patient who presented no other signs of cardiac trouble these limits were surpassed in three, four, or more directions, it could be confidently asserted that the heart was abnormal, and that it was abnormal was borne out by his clinical experience. He referred to the curves which were held to represent damage of one or other branch of the auriculo-ventricular bundle, of which Professor Waller had also spoken. He maintained that the evidence which associated these curious curves and the corresponding lesion was considerable. If the right branch of the bundle was destroyed the impulse would travel to the left and apical portions of the ventricle and give rise to a curve similar in outline to that of a premature contraction arising in this region. That might be considered all very well in theory, but it had been proved experimentally, and in cases in which the lesion had been diagnosed before death, such lesion had been found post mortem. Dr. Lewis emphasised the frequency of this sign and the importance of its association with widening of the *P–R* interval; for the two together were evidence of a widely diffused muscle damage, which probably affected not only the main bundle and its branches but also more silent areas of the heart; a parallel was drawn between the condition and the similar nervous phenomena in disseminated sclerosis. A prominent physician, speaking but a little while ago at a large London hospital, a physician who weighed his words before he uttered them, declared that an examination of the heart was incomplete to-day until the electrocardiographic examination had been undertaken. Dr. Lewis actively supported this view. The fame of Einthoven's method had spread to all parts of the world. Instruments were installed, or were being installed, at several London hospitals. There were a number in New York, and many in Germany and other countries. He looked forward to the day when Einthoven's instrument would be a part of the equipment of all large hospitals, and had no doubt that the time when this would happen was fast approaching. In conclusion, Dr. Lewis thanked Professor Waller for his kind references to his own work at University College Hospital, and for the cordial manner in which he had expressed his appreciation of the new clinical method.

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neck. From the navel to the neck the cord passed under the right shoulder and across the back of the chest and over the left shoulder. The pallor of the child when first delivered was alarming. After loosening the coils of cord the child began to breathe, and was still thriving. Dr. Briggs was of opinion that delivery by forceps or version would have been difficult, if not impracticable, and that the life of the child entirely rested upon the treatment by Cæsarean section.

Dr. W. E. FOTHERGILL read a short communication entitled "A Plea for the Use of Pathological Classification of the Diseases of Women."

CHELSEA CLINICAL SOCIETY.

The Human Electrocardiogram.

THE annual clinical debate of this society, dealing with Disorders of the Circulatory System,[1] was continued on March 19th at the Physiological Laboratory of the University of London, South Kensington, Dr. MANSELL MOULLIN being in the chair.

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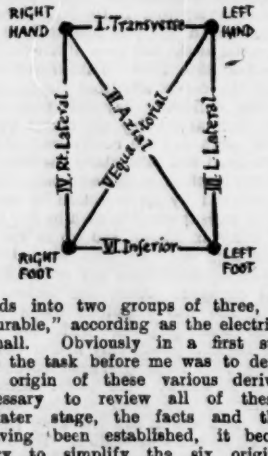

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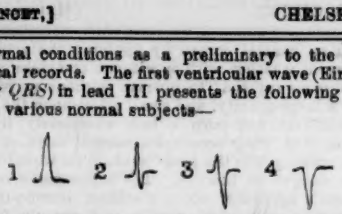

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Tracings were shown from apex and radial pulse, in many of which the beats due to auricular contraction could be distinguished, but the value of the electrocardiographic method was evidenced by a series of electrocardiograms taken with different leads (thrown upon the screen), all of which showed clearly auricular beats occurring at regular intervals of time but quite independently of the first and second ventricular waves. Leads I, II, and III showed these especially well, the tracing with axial leads showing the varying relation of one of the auricular beats to the second ventricular (*T* of Einthoven). In the early stages, in the absence of the electrocardiogram, diagnosis would have been with difficulty positive, since in this case, where one most wished to get venous curves in the neck, they were difficult to obtain. Dr. Halls Dally, after referring to the brilliant work of Professor Einthoven, said that he considered this case as an example of the usefulness of electrocardiographic methods in accurate diagnosis of various disturbances of the circulation, and thought that it might be of interest to members of the society if he quoted the concluding paragraph from a personal letter recently received from Dr. Lewellys Barker, the associate professor of medicine in Johns Hopkins University: "It seems to me," said Professor Barker, "that sphygmography and phlebography have now in practical work little more than historical interest provided arrangements are made for electrocardiography."

OPHTHALMOLOGICAL SOCIETY.

A Distinctive Conjunctival Papule.—Operative Treatment of Conical Cornea.—A New Cell Proliferant.—Relief of Tension in Chronic Glaucoma.—Exhibition of Specimens.

A MEETING of this society was held on March 14th, Mr. J. B. LAWFORD, the President, being in the chair.

Mr. H. HERBERT read a paper entitled "A Distinctive Conjunctival Papule." He described a somewhat prominent defined painless papular swelling found on the inter-palpebral ocular conjunctiva, fairly common in India, and apparently rare in Europe. It occurred in adults, chiefly in males, and most often at the inner side of the cornea. It was generally of a pale pink colour, paler than the immediately surrounding injected conjunctiva, and there were a few enlarged blood-vessels running to it. It might stain feebly with fluorescin. It might last two or three weeks only or considerably longer. Its chief histological features were great epithelial proliferation, more or less inflammatory infiltration, and elastic tissue degenerative changes. In the more active cases the epithelial cells were much enlarged, and multinuclear epithelial giant cells were to be found. Where epithelial downgrowths were unable to form, owing to firm supporting fibrous tissue, the nutrition of the epithelial mass was served by the penetration of thin-walled blood-vessels running into it. It was doubtful whether the elastic tissue changes were an essential feature, since they were well developed in the otherwise normal neighbouring conjunctiva. They were the changes which had been described in pingueculæ. Some of the broken-down elastic tissue was carried by the lymph stream into the epithelium, more particularly in the more inflammatory cases. Some of the degenerate material was taken up by the epithelial cells and thus disposed of. Its presence appeared to stimulate the multiplication of the cells. Portions of it, by causing localised proliferation, led to the formation of "cell nests." This observation should be tested as to its possible application to epithelial pearls in other affections, as in epithelioma of the skin. Much of the hyalin degenerate elastic material no longer stained specifically, but showed some newly acquired selective staining affinity, which aided in its recognition. In one case particles of broken-down tissue were also found in the epithelium.

Mr. C. A. WORTH read a paper entitled "Operative Treatment of Conical Cornea," describing a new operation for the condition. In most cases needing operation there was a very high degree of myopic astigmatism, sometimes as much as 15 or 20 D., with little spherical error, and even with the most accurate combination of correcting lenses vision was usually very poor. At the apex of the cone there was usually what looked like an opacity, but examination with oblique illumination and a loupe often showed this appearance to be merely a refraction effect. Most surgeons operated on conical cornea by applying the actual cautery to the apex, whether with or without complete perforation. Some surgeons say that to operate without perforation is to produce a large opacity, and small effect upon the refraction. Those who do not burn a hole completely through the cornea say that the presence, for several days, of a sloughy fistulous opening into the anterior chamber would be a source of grave danger to the eye. The instruments required for Mr. Worth's operation are a platinum thermo-cautery and spirit lamp, and a broad needle and spatula for tapping the anterior chamber. The platinum cautery has a flat surface of an elongated oval shape. The eye is cocainised, and a drop of eserine instilled. A spot is selected on the cornea in the meridian of greatest curvature, nearly midway between the summit and the margin of the cornea. The cautery is heated in the spirit lamp and held over the eye until it almost ceases to glow in daylight. It is then applied to the cornea at the selected spot with its long axis at right angles to the meridian of greatest curvature. It should only be left in contact with the cornea for an instant. Two or three applications are required, the cautery being heated each time. It is endeavoured to make a cavity about 4 mm. long and 2 mm. wide, with steep edges, and extending nearly down to Descemet's membrane, but very great care should be taken to avoid opening the anterior chamber. Descemet's membrane appears to be more resistant to burning than the substance of the cornea, or perhaps the aqueous protects it in the same way as water protects a tin kettle. With care one can continue the cauterisation until the membrane is seen bulging at the bottom of the wound. Then the anterior chamber is tapped near its periphery and the aqueous evacuated. This is done on each of the following three or four days, and after that on alternate days until the ulcer is healed. The main points of the operation are—the dangers of a communication between the wound and the interior of the eye are avoided; the frequent evacuation of aqueous promotes rapid healing of the wound and greatly increases the effect of the operation; by concentrating the effect of the operation chiefly upon one meridian, and so reducing the myopic astigmatism, one gets better visual results than could otherwise be hoped for; no subsequent iridectomy is required. Mr. Worth said the operation was so safe and satisfactory that he would not hesitate to recommend it in a case of non-progressive myopic astigmatism of very high degree.—The paper was discussed by Mr. ERNEST CLARKE, Mr. C. WRAY, Sir ANDERSON CRITCHETT, Major G. F. ALEXANDER, Mr. ARNOLD LAWSON, and Mr. T. HARRISON BUTLER.—Mr. WRAY, in his remarks, expressed surprise at hearing Mr. Worth say that so many cases of the kind were corrected by means of myopic cylinders. The last seven cases he had himself had were corrected by plus cylinders.—Sir ANDERSON CRITCHETT'S observations consisted of a defence of his operation by means of the galvano-cautery.

Mr. A. R BRAILEY read a contribution, entitled "A New Cell Proliferant." He called attention to a new drug, named allantoin, which he termed a cell proliferant. Its action was not that of an antiseptic; indeed, it actually encouraged the growth of organisms; but its great use was that it encouraged the proliferation of the cells of the tissue. He mentioned the case of a small corneal ulcer, which, after cauterising and the application of various remedies, did not get well. Drops of allantoin quickly caused a marked improvement. He mentioned several similar cases, and said it acted by causing extra nourishment to be received by the cornea. The drug was, he said, well worth a trial in long-standing keratitis, and possibly scleritis.

Mr. A. B. ZORAB read a paper on the "Relief of Tension in Chronic Glaucoma: A Preliminary Report on a New Operation." After briefly reviewing the existing operations, he indicated that the guiding principle in each was drainage of the interior of the globe. He then described his own procedure, based on the same guiding principle. He described two methods, of which the second was, in his opinion, the better. Originally he passed a threaded needle subconjunctivally into the anterior chamber, piercing the sclerotic coat at the angle. The needle was then brought out at a corresponding point through the angle and out again subconjunctivally. The ends of the silk were cut short and a little manipulation ensured their being covered by conjunctiva. He found, however, that the conjunctiva was very frequently torn by the fixation forceps, and also there was some risk of pricking the

iris and lens capsule with the point of the needle. Acting on the suggestion of Mr. J. F. Bullar, he modified the operation thus: A large flap of conjunctiva was raised—at the upper part of the globe for choice—leaving a crescentic attachment along the limbus. A small incision was then made under this flap into the anterior chamber. A piece of sterile silk thread, about a third of an inch long, was doubled on itself, and the loop was pushed gently through the sclerotic incision into the chamber. The conjunctival flap was then replaced and stitched in a couple of places, great care being taken to see that the distal ends of the bight of silk did not come near the margin of the conjunctival incision. Mr. Zorab claimed for this procedure that it was quite devoid of manipulative risk, that it established efficient drainage which promised to be permanent, and that it was simple to perform. The only danger, in his opinion, was from sepsis, but he did not regard this as being any greater than the other operations involving opening the eyeball. The greatest emphasis was laid on ensuring a complete covering of the silk by healthy conjunctiva. As the oldest case only dated back to July, 1911, he was careful to state that the operation was only on trial, but he was firmly convinced that it held out good promise. He had so far restricted it to cases of chronic glaucoma, as acute cases did well with iridectomy. He concluded his paper with notes of the cases already operated on.—Mr. M. STEPHEN MAYOU mentioned some cases on which he had tried a similar procedure somewhat before Mr. Zorab.—Mr. ZORAB replied.

The following card specimens were shown and discussed:—

Mr. R. R. CRUISE: (1) A Case of Tuberculosis of the Conjunctiva; and (2) Scotometer for Testing Central Colour Vision.

Mr. WRAY: A case of Subretinal Cyst.

Mr. H. B. GRIMSDALE: Acquired Hypermetropia with Rupture of Choroid.

Mr. G. COATS: Pigmented Cyst lying Free in the Anterior Chamber.—Mr. HERBERT said he saw a similar case to Mr. Coats's in Bombay, but there was no deposit on the lens capsule.

Mr. L. V. CARGILL showed a case of Osteoma of the Frontal Sinus.

Mr. J. F. CUNNINGHAM showed a case of Episcleral Nodule, probably Tuberculous.

Mr. N. BISHOP HARMAN exhibited a case of Guttate Iritis.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Exhibition of Specimens.—Concealed Accidental Hæmorrhage.—Diverticulitis.

A MEETING of this society was held in Sheffield on March 15th, Mr. RICHARD FAVELL, Vice-President, being in the chair.

Dr. D. G. NEWTON showed a specimen of Chorion-Epithelioma.

Mr. A. W. CUFF reported a case of Extreme Vesical Incontinence, associated with prolapsus uteri, successfully treated by laying bare the urethra, putting in some puckering stitches, then doing a very thorough anterior and posterior colporrhaphy and Gilliam's operation.

Dr. G. W. FITZ-GERALD showed: 1. A Mucoid Polypus of the Cervix removed from a patient aged 31. The patient, who had been married for 12 months, complained of dyspareunia, pain in the back, occasional menorrhagia, and a persistent offensive leucorrhœal discharge. The tumour when removed was of the size of a tennis-ball, and was brought before the society on account of its unusual size and the similarity of its structure, naked-eye and microscopical, to that of a malignant adenomatous growth of the cervix and uterus recently shown by Dr. Fitz-Gerald. This tumour showed no indication of malignant change. 2. A Dermoid of the Right Ovary and a Pedunculated Fibroid Tumour, which was attached to the posterior wall of the uterus, removed from a patient aged 70. An interesting feature in the history of the case was that two years before she had suffered from an acute illness, which was attributed to a pelvic tumour. Her condition at that time had been so grave that it was feared she would not survive. She, however, got well. The dermoid showed at its upper end a blood clot of the size of a ping-pong ball, which no doubt was the result of torsion of the pedicle having occurred at the time of the previous illness. She complained of constant pain in the right iliac fossa, and low down in the back.

Mr. MILES H. PHILLIPS (Sheffield) reported a case of severe Concealed Accidental Hæmorrhage, which had been successfully treated by Cæsarean section followed by hysterectomy. The patient was 33 years old. During the previous 13½ years she had had nine full-time labours, and one miscarriage. Until one morning a fortnight short of full time she had been in good health. She was then awakened by severe abdominal pain. She fainted two or three times. There was no external bleeding. Dr. E. T. K. Walker, of Tinsley, recognised the condition, and at once sent her into the Jessop Hospital. On admission she was very pale, with drawn features, and a feeble pulse of 120. The uterus was tense and tender; the child could not be felt. The cervix was thick and firm and just admitted the tips of two fingers. On attempting to rupture the membranes a gush of blood poured down the vagina as if from a tap. A speculum was at once inserted and the vagina tightly packed with gauze. Blood soon began to escape freely through the packing and the pulse became uncountable. Considering that an immediate hysterectomy might give her a chance, the house surgeon, Dr. J. Chisholm, promptly had the theatre got ready and telephoned for the surgeon on duty. On opening the uterus a large quantity of blood and clot escaped. The child was as dead-white as the mother. The placenta was found loose on the posterior wall of the fundus, completely separated from the placental site, which was on the anterior wall. The membranes were intact. The uterus was thin and perfectly flabby. It was at once amputated at a level slightly above the cervix. No hæmorrhage occurred from any of the cut edges. The patient was too bad to move from the hot operating theatre for several hours. Pituitary extract, oxygen, saline infusions, strychnine, and digitalin were used. For 36 hours recovery was very doubtful. Thereafter she made steady progress, which was delayed in the third week by a slight paracervical cellulitis.

Dr. C. OLDFIELD read a paper on Diverticulitis as a Cause of Pelvic Inflammation, with a report of three cases. The disease, he said, was fairly common and well known to surgeons. Although the lesion was usually pelvic, the disease had apparently escaped the notice of gynæcologists. The two chief clinical varieties were: (1) left-sided "appendicitis"; and (2) chronic obstruction. The former might assume various forms just as appendicitis did, and not uncommonly cause pelvic abscess or even general peritonitis. The latter variety resembled obstruction from malignant disease of the pelvic colon, and on exploration, and even after resection of the portion of bowel involved, the disease was usually taken for carcinoma. In nature it was inflammatory and arose in connexion with small multiple diverticula from the colon, particularly the sigmoid. On dissection these diverticula were found to be hernias which took the form of little pockets varying in size from a pea to a hazel nut. The mucosa was herniated through slits in the muscular coat of the bowel and generally projected into the sigmoid mesentery or the epiploic appendages. It would be readily imagined how concretions or foreign bodies came to lodge in these pockets and, further, that inflammatory diseases would result. In operating for pelvic inflammation it was necessary to be mindful of the existence of this disease because, while it simulated left tubo-ovarian disease, its operative treatment was both more difficult and more dangerous. Indeed, the death-rate from operations in chronic cases was very high and was mainly due to the fact that the true nature of the condition had not been determined until after death.

EDINBURGH OBSTETRICAL SOCIETY.

Transplantation of the Ovary.—Lateral Incision of the Perineum.—Measuring Internal Diameters of the Female Pelvis.

A MEETING of this society was held on March 13th, Dr. J. HAIG FERGUSON, the President, being in the chair.

Dr. HUGH S. DAVIDSON read notes on three cases of Transplantation of the Ovary in women in whom palliative measures had failed. As all the women were under 30 homoplastic grafting was attempted, in order to obviate the symptoms following the early menopause. One case was a complete failure. One was a comparative success but was

complicated by the appearance of a fibroid of the uterus; the patient, however, had not shown any menopausal symptoms. The third began to menstruate three months after the operation and had menstruated ever since. None of these patients suffered any return of menstrual pain, nor any pain at that time at the site of the transplantation of the ovary in the rectus abdominis muscle. A mere slice of ovary was embedded into a slit in the muscle. Dr. Davidson considered this method of treating pathological ovarian conditions superior to attempts at conservative surgery, as the transplanted portion had shown no signs of further change in its new situation, whereas pieces of ovary left *in situ* tended to become pathological and thus to require a second operation. While the grafts might not prove permanent, they produced a slowly appearing and consequently milder menopause.—Dr. A. H. F. BARBOUR asked whether the return of hæmorrhage after the removal of the two ovaries was considered as a menstruation. This occurred without transplantation. Had the cases described gone on menstruating for a year? Could the same results be expected from a portion of ovary engrafted into a muscle as from ovaries in the normal position? Did secretion from an engrafted ovary get into the system in the same way? Was there any evidence that ovulation was taking place? However, this transplantation was easily done, and might be practised in many cases and the results watched.—Dr. J. W. BALLANTYNE remarked that the results of transplantation experiments in animals had not so far been successful, but suggested possibilities. The ideal site would be transplantation into the wall of the uterus, and so to continue their secretion and ovulation, with possibly impregnation, as in a case of removal of the tubes.—Dr. F. W. N. HAULTAIN asked whether the menopausal symptoms were equally kept off if menstruation was not established. He always removed the uterus when removing both ovaries. Was this essential in the prevention of the symptoms of artificial menopause? He believed the results attending the removal of the ovaries to be much exaggerated. He had found that of women in certain asylums only 0·5 per cent. had had their ovaries removed, whereas 5 per cent. were without their appendices; so that one was more justified in saying that insanity followed removal of the appendix than of the ovary. He believed the results of the artificial menopause depended wholly on the sexual temperament of the woman.—Mr. E. W. SCOTT CARMICHAEL related the results of transplanting the ovary in 21 rabbits. In 15 there was success and 6 completely failed. Success depended on the site; it was more successful when implanted into muscle than into the broad ligament or on the parietal peritoneum. Transplantation in the human subject should be into muscle. He believed that in women only a slice of the ovary could be transplanted, and that the tendency would ultimately be to complete atrophy; yet even this would temporarily diminish the symptoms. If part of an ovary was left normally attached it would certainly hypertrophy.—The PRESIDENT said that when the ovaries and part of the body of the uterus had been removed he had known menstruation to occur from the lower part of the endometrium, which kept the patient comfortable. Transplantation was an alternative to resection of the ovary, which he had found unsatisfactory, as the portion left tended to become cystic.—Dr. DAVIDSON, in reply, said that the wall of the uterus seemed the best part for the transplantation. Conservative surgery of the ovary was a failure; in every case he had seen a second operation had been required in from 12 to 18 months.

Dr. R. ROBERTSON, in a paper on Lateral Incision of the Perineum and its immediate repair after labour, advocated lateral incision with scissors whenever there seemed probability of rupture. It was required specially in primiparæ, in occipito-posterior cases, and in rigidity of the perineum. Right lateral incision was practised from the vagina to 1 inch outside the anus and for 2 inches up the vaginal wall. There was often free bleeding. After the child was born, and before the placenta came away, the incision was carefully stitched up in layers with catgut, bringing the cut ends of the muscle together, the skin edges being joined with silkworm gut. The incision, if carried out in time, saved detachment of the levator ani from the symphysis, and by preserving the perineum prevented prolapse of the anterior vaginal wall. The stitching was easily carried out.—Dr. HAULTAIN said he had tried lateral incision, but had given it up after a fair trial with varying success.—Dr. B. P. WATSON said he adopted Lapthorn Smith's method. When the patient was under chloroform the thumb was passed into the rectum and the fingers into the vagina, and three silkworm-gut sutures were inserted, passing closely below the mucous membrane of the vagina, the ends of the sutures being held by forceps. If the perineum tore, the sutures were in place for tying; if no tear occurred they could easily be withdrawn.—Dr. J. M. BOWIE considered two small lateral snips better than one large one.—The PRESIDENT, Dr. W. FORDYCE, Dr. J. YOUNG, Dr. H. O. NICHOLSON, Dr. JAMES RITCHIE, and Dr. G. KEPPIE PATERSON joined in the discussion, and Dr. ROBERTSON replied.

Mr. ARCHIBALD MCKENDRICK and Dr. JAMES YOUNG demonstrated an improved method of Measuring the Internal Diameters of the Female Pelvis in the living subject. Mr. McKendrick described the X ray and mathematical aspect of the subject and Dr. Young the anatomical. It was shown, as a result of an exhaustive investigation of dried pelves, normal and abnormal, that the plane of the transverse diameter coincided invariably with a line joining the upper margin of the pubes and the posterior superior iliac spines. The plane of the conjugate was more variable, however, but in 95 per cent. of cases a line joining the upper margin of the pubes and the promontory of the sacrum if prolonged cut the vertebral spines on an average 1·7 inches above the line joining the posterior superior spines. By their method the measurement of the transverse diameter was strictly accurate, but that of the conjugate was in a small percentage of cases liable to an error of about one-tenth of an inch when examined by the X ray pelvimeter. A skiagraph was taken with the patient in the prone position, the X ray tube being 36 inches vertically above the plate. A plumb-line was dropped to the region of the sacro-coccygeal joint and the point marked by a metal ×. The posterior superior spinal line and a point 2 inches above it on the spine were similarly marked, and their respective distances from the photographic plate recorded. The distance of the pubes from the plate was also noted. The X ray exposure was made, and a print or tracing taken and applied to the X ray pelvimeter. The X ray pelvimeter devised by Mr. McKendrick reproduced accurately the conditions under which the skiagraph was taken. The focus point of the X ray tube was represented by a pivot from which cords diverged. These cords represented X rays, and were kept taut by means of steel springs. The axial ray was a fixed cord, and was cut at right angles by a fixed transverse cord 36 inches from the pivot; the other cords were moveable about the fixed pivot. For ease of measurement other moveable transverse cords completed the instrument; these moved up and down on fixed scales at the sides marked in inches. The skiagraph was applied to the pelvimeter in such a position that the mark × (focus point) was at the intersection of the fixed axial and transverse cords, the spines of the vertebræ lying under the transverse cord. The cords representing X rays were now moved till they coincided with the bony points marked in metal, and with the pubes and the promontory on the print. The print was now relative to the instrument exactly as the plate was when the X ray exposure was made, but on a different axis. The original distances of the bony points from the plate were now fixed on the pelvimeter by means of the transverse cords; the intersections of these and the X ray cords represented accurately the original relative position of the bony points. A straight-edge applied to the intersections would represent the plane of the conjugate, and where the X ray cord applied to the promontory cuts the straight-edge would correspond to the original site of the promontory. The exact conditions under which the X ray was taken were thus reproduced by means of the pelvimeter, and a measurement from the pubes point to the promontory points on the cords would give the measurement of the conjugate. In the same way the transverse diameter was measured, but in this case the plane was marked by the straight-edge from the intersection of, first, the posterior superior spinal cord and the transverse cord representing its distance from the plate; and second, the pubes cord and the transverse cord representing its distance from the plate. Where the straight-edge cut a perpendicular dropped to the widest part of the brim formed the point across which the transverse diameter was measured (for example, say 3 inches). The print

was now turned round with × as its centre and brought to lie so that the vertebral spines were in line with the original plumb line. Two X ray cords were then applied to the widest part of the brim of the pelvis and the distance between them (say, 3 inches) would give accurately the measurement of the transverse diameter. The X ray pelvimeter was being manufactured by Messrs. Siemens and Co., London.—Dr. BARBOUR and Dr. E. F. T. PRICE discussed the communication.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Cerebellar Tumour.—X Ray Diagnosis of Aneurysm of the Thoracic Aorta.

A MEETING of this section was held on March 8th, Sir JOHN W. MOORE, the President, being in the chair.

Dr. P. DEMPSEY showed a patient suffering from Cerebellar Tumour and detailed her history. The patient, aged 24, had suffered for eighteen months from headache, chiefly vertical, occasionally occipital, accompanied by attacks of vomiting and giddiness and periods of transient blindness. On admission, smell and taste normal; marked optic neuritis, especially in left eye; vision defective, but could read; weakness of left external rectus; slow, deliberate nystagmus to left; rapid fluttering movements to right; slight paresis of left side of face, and tactile anæsthesia over fifth nerve; hemiparesis; left arm showed jerky, rapid movements of supination and pronation on movement; no tremor when at rest; gait staggering, more so with eyes closed; no marked deviation to either side; knee-jerks exaggerated; plantar reflexes diminished, flexor; leg movements ataxic when the patient was lying down; left arm was pronated and supinated slowly and awkwardly; no sensory defect other than mentioned; no bulging or tenderness of cranium.—Dr. J. CRAIG said there were some features in the case that threw a little doubt on the cerebellar nature of the lesion. It struck him as peculiar that the fifth, sixth, and seventh nerves should be involved without any involvement of the eighth. He had exhibited a case some time ago in which the eighth nerve was involved with the fifth and seventh.—Dr. T. G. MOORHEAD said it was extremely important that physicians should form some opinion as to the value of operation in these cases. His experience of operations performed for intracranial compression was very favourable, so far as the relief of the symptoms was concerned, and he had seen sufficient cases done to convince him that operation was the treatment to adopt in all cases of intracranial tumour. In two cases that came under his notice recently very considerable relief was afforded to distressing symptoms by operation in the parietal region.—Mr. A. J. M. BLAYNEY said he understood the patient had refused operation. The recognised surgical treatment was to perform the decompressive operation, and there was no doubt this gave relief for some time. An argument in favour of the occipital in preference to temporal decompression was that should further operation be afterwards undertaken the necessity for a fresh opening would be obviated.—Dr. F. C. PURSER discussed the exact site of the tumour in this case on the symptomatology of many cases which had been operated on or had come to necropsy. He drew attention to the danger of diagnosing tumour of the cerebellum unless localised symptoms come on, at latest, very soon after general symptoms. He also discussed the value of vertigo as a symptom.—Professor W. H. THOMPSON said that from the physiological point of view the case was a complex one. The chief complications were the ataxia and the Romberg's sign; the other symptoms might be explained by an extra-cerebellar tumour on that side. He was inclined to the view that the tumour was extra-cerebellar.—Mr. A. A. M'CONNELL pointed out that brain surgery differed from general surgery and needed much practice in technique. He called attention to a point regarding diagnosis described by Cushing—viz., that in early cases there is a change in the colour-fields of the eyes known as dyschromatopsia.—Mr. F. K. CAHILL gave his experience of a case of a school-boy in which a diagnosis of brain tumour had been made by the school medical officer. The patient consulted him afterwards, complaining of a pain in his head, and on consultation with Sir Henry Swanzy the conclusion was arrived at that there was no tumour. The boy died four days afterwards, and on inquiry it was found that he had been noticed staggering, but up to that time this symptom had been withheld.—The PRESIDENT summed up the discussion, and Dr. DEMPSEY replied.

Mr. MAURICE R. J. HAYES read a paper on the X Ray Diagnosis of Aneurysm of the Thoracic Aorta. The necessity of remaining for from five to ten minutes in total darkness before making a radioscopic examination of the thorax in order to increase the luminous sensibility of the retina was insisted upon, and in order that the observer may be able to give an opinion of any value it was important that he should be conversant with the X ray appearances of chests that were normal as well as diseased. The diagnosis should be made from the screen examination. The shadows on a negative were likely to be misleading, especially to the inexperienced. With the negative static conditions only could be studied, with the screen dynamic conditions could be observed. The appearances of the normal thorax were fully described, and the different positions in which the thorax should be examined were demonstrated. The differential diagnosis of aneurysms, new growths, consolidation of the lung, enlarged glands, and empyema was discussed, and lantern slides and diagrams illustrating the various points in the paper were shown.—The paper was commented on by the PRESIDENT, Dr. MOORHEAD, Dr. PURSER, and Dr. HARVEY.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 20th, Dr. F. H. Jacob, the President, being in the chair.—A paper was communicated by Mr. Percy E. Tresidder and Mr. Stanley Tresidder on the Treatment of Syphilis by "606" or Salvarsan. The former first gave a brief description of the chemical and physical properties of the drug. He briefly outlined the history of syphilis from its introduction into Europe 400 years ago to the discovery of its causative agent in the spirochæta pallida. Mercury had been held to be the sole specific for syphilis until Dr. Ehrlich, of Berlin, discovered salvarsan. Dr. Ehrlich was able to cure inoculated monkeys by means of salvarsan in seven days; he discovered, however, that three months later the cured monkeys could be again inoculated, thus proving that salvarsan did not cause immunity from the disease. A description of the methods employed in administering the drug was then given; the author always used the intravenous method. They generally administered two injections within a fortnight, and then followed with a course of mercury. Certain precautions were necessary; the optic discs should be examined; nor should patients suffering from any of the constitutional diseases—e.g., diabetes, tuberculosis, cardiac diseases, &c.—nor debilitated and old or very young subjects be treated with salvarsan. They kept their patients in bed for 24 hours before the injection and for 48 hours after. Within an hour of the injection the patient's temperature rose to 100° F., and there was general malaise, but after six hours these symptoms subsided and the patient rapidly improved. A Wassermann test of the blood should always be made to confirm the diagnosis, and also should be subsequently made to judge the result of the treatment. Generally, they found six weeks after the injection that the Wassermann reaction was "partially positive," but after a short course of mercury it became negative, and all the symptoms of syphilis disappeared. In cases of skin and mucous membrane lesions the immediate results were marvellous. In cases of congenital syphilis they gave the mother an injection, and this acted upon the child through the milk, in spite of the fact that the milk contained no trace of arsenic. They also found the serum from the blister of an injected patient cured a second patient if injected into him. They had been successful in treating cases of tabes dorsalis, general paralysis of the insane, and a case of severe tertiary glossitis. Finally, a list of diseases that could be cured by the drug was given.—Mr. Stanley Tresidder then read notes of typical cases. They had now employed the drug in nearly 100 cases for a period of over a year. They had never had an alarming complication and their results were striking. He quoted cases where they had successfully employed the drug in primary, secondary, and tertiary syphilis, congenital and hereditary syphilis; in parasyphilitic diseases, such as tabes dorsalis and general paralysis of the insane. On being questioned as regards the latter case, he said the diagnosis had been confirmed by an eminent Edinburgh

specialist, and the man had so far recovered as to be able to travel abroad, although he had only the previous day heard by cable that the patient had unfortunately had a seizure.—A demonstration was then given of the instruments used, and two cases were shown illustrating the curative results of the drug.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Royal Devon and Exeter Hospital on March 8th, Dr. R. V. Solly, the President, being in the chair.—Dr. W. Gordon read notes on a case of Cancer of the Œsophagus with Perforation, in which the Boas-Oppler bacillus was recovered from the lung tissue during life.—The President remarked that he had found the bacillus in a considerable number of cases of gastric cancer, and considered its presence or absence of distinct value in arriving at a diagnosis.—Dr. J. Raglan Thomas asked Dr. Gordon if radium had been tried in this case, and related a case under his own care where radium had been applied to an œsophageal growth, but unfortunately discontinued by the patient. A post-mortem examination by a skilled pathologist testified to distinct healing having taken place at the point of radium application.—Mr. R. A. Worthington reported in brief and showed specimens from (1) Endothelioma of the Palate; (2) Cancer of the Large Intestine in which a portion of the growth was passed per anum; and (3) Polypoid Tumour springing from the supratonsillar fossa.—Mr. H. Newman showed the following cases for Dr. Henry Davy: (1) A girl with Erb's Juvenile Form of Muscular Dystrophy; (2) a young woman with Exophthalmic Goitre in whom symptoms of myxœdema coexisted; and (3) a man with Cerebral Gumma under treatment with injections of salvarsan.—Dr. Gordon showed cases of: (1) Aortic Regurgitation in a young girl in whom anginal attacks had occurred; the attacks were relieved by the nitrites and by salicylate of sodium; and (2) Mitral Stenosis. Dr. Gordon also read notes on a case illustrating the Value of the Cardiac Sign in Cancer. The patient was found after delivery to have a tumour in the lower abdomen, and the consensus of opinion favoured a diagnosis of malignancy. The presence of a normal area of cardiac dulness caused Dr. Gordon to reconsider the diagnosis, and eventually the presence of tubercle bacilli in the urine was established and the true nature of the tumour arrived at. Dr. Gordon stated that in about 100 cases 90 per cent. were found to have reduced cardiac dulness.—Mr. Worthington, who had examined the woman with the cystoscope, had noted an ulcer on the posterior vesical wall, and he thought possible that a tuberculous growth of the mesentery had formed adhesions to the bladder.—Dr. J. Delpratt Harris showed a Sacral Tumour which he had removed from a woman aged 26. The tumour proved to be a dermoid; it had caused no inconvenience until quite recently. The excision was performed with considerable difficulty owing to deep extension into the pelvis and intimate attachments to the posterior rectal wall. Dr. Harris also showed X ray negatives of: (1) Renal Calculi; (2) Ureteral Calculi; (3) Phleboliths, and pointed out how easily (2) and (3) could be confused by the unwary.—The President showed a Tumour of the Testis, the growth having occurred in a retained organ.—Mr. Russell Coombe, in commentiog on the case, recollected one where myxosarcoma of the testicle at first suggested hydrocele. He remarked on the high grade of malignancy and the rapid recurrence in such cases.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held on March 19th, Dr. Morgan Dockrell presiding.—The following cases were shown and discussed: (1) A Syphilide Resembling Lupus Vulgaris, by Dr. J. L. Bunch; (2) Pityriasis Rubra, by Dr. W. Griffith; (3) Pityriasis Rosea and a series of cases of Keloid treated by local hyperæmia and X rays, Dr. W. Knowsley Sibley; and (4) Acne Vulgaris Treated by Vaccines, Dr. T. Galbraith.—The President read a paper on Lichen and Lichenification and showed a series of cases and microscopic slides to illustrate these conditions.

WORTHING HOSPITAL.—It has been decided to instal an X ray apparatus and electric bath at Worthing Hospital as a memorial to Mr. Augustus H. Collet, who for 37 years was one of the medical officers of the institution. Mr. Collet died in March, 1909

Reviews and Notices of Books.

The Growth of Bone: Observations on Osteogenesis. An Experimental Inquiry into the Development and Reproduction of Diaphyseal Bone. By Sir WILLIAM MACEWEN, M.D. Glasg., F.R.S. With 61 figures. Glasgow: James Maclehose and Sons. 1912. Pp. 210. Price 10*s.* net.

THIS inquiry was undertaken to test by direct experiment problems connected with the growth of bone, and was carried out for the most part "on the canine species" in the developmental period. According to the author, this was necessary, "as a firm belief exists that all periosteum produces bone—such is the physiological teaching—many believing that diaphyseal bone could not be produced without periosteum, and, once produced, would die were the periosteum removed." He says that previous experience in human physiology had indicated that the periosteum was not osteogenic, but not so convincingly to the mind of others as direct experiments have demonstrated. He speaks of "the osteogenic potency of the growing shaft," not the periosteum, as the true cause of the filling up of blanks in the shafts of growing bone. In the end, of course, it is the osteoblasts that build up bone.

Beginning with the genesis of the osteoblast, we are told that "the nuclei of the cartilage cell divide and are set free as osteoblasts." This is certainly not the usual teaching as regards the origin of osteoblasts. It is also stated that "the growth occurring at the normal epiphysis is governed by inherent heredity." We may remark that very few of the historic names associated with investigations on bone production and regeneration—except those of Duhamel and John Hunter—are mentioned. We were unable to find any reference to the well-known work of L. Ollier, of Lyons, "Traité Expérimentale et Clinique de la Régénération des Os" (1867), some of whose results are in direct contradiction to those of the author.

Besides its other functions the periosteum is regarded as a limiting membrane to the osteoblasts. The author then proceeds to discuss the question, "Has the periosteum inherent osteogenic power?" A portion of the shaft of the radius was removed subperiosteally, the periosteum being left *in situ*. After ten weeks there was a gap between the ends of the bones where the periosteum was left intact, but new bone had been produced by the shaft: even when the whole radial shaft is removed, the periosteum being left intact, no new shaft has formed. "There was an entire absence of ossific reproduction from the periosteum." A flap of periosteum raised from the shaft of the radius and made to surround a muscle did not result in bone formation. Transplanted periosteum, we are told, does not produce bone. Let anyone read Ollier's account of his experiments and study the illustrations showing the production of bone by transplanted periosteum, and even the growth of bone on a cockscomb, and he will see that there is a wide gulf fixed between the results of Sir William Macewen and those of the earlier experimenters in the city on the Rhône and the Saône. Ollier distinctly states that the periosteum of all bones is not equally potent when transplanted. That of long bones is more "favourable" than that of flat bones, and amongst these the "juxta-epiphyseal" periosteum is the most prolific.

The author raised a flap of periosteum from bone except at the proximal extremity and caused it to encircle a "muscular fasciculus." There was no bone formation. A similar experiment was made by Ollier on the tibia of a dog with resulting bone formation, which is depicted in an illustration. Who is to decide when such diametrically opposite

results are found between the experiments of two such distinguished surgeons—albeit the experiments of Ollier were often accompanied by suppuration, while those of Sir William Macewen were, of course, aseptic throughout? Ollier showed that if he transplanted under the skin the scrapings from the inner layer of the periosteum—i.e., the osteogenic or osteoblastic layer—they produced little grains of bone in a rabbit 4½ months old. The next question submitted to direct experiment was "the osteogenic power of bone bereft of its periosteum." On removal of this "limiting membrane" the osteoblasts escape and mingle with the other tissues. On removal of the periosteum from the entire shaft of the radius, after 12 weeks new bone has formed on the shaft. Those interested in this question should read Ollier's account of his experiments. On repeating Duhamel's silver ring experiment it was found that on a silver ring being applied to bone denuded of its periosteum the osteoblasts were poured out of the shaft, increased the thickness of bone, and covered the silver ring with osseous tissue.

Next bone grafting without periosteum is considered, and it is shown that rings of bone without periosteum, when broken up into small fragments, reproduced bone if transplanted to a gap cut in bone devoid of periosteum. Shavings of nude bone were transplanted between the muscles where they united and formed again the continuity of the shaft Osseous shavings inserted into the intermuscular septa of the neck in seven weeks formed one dense plaque of bone. A portion of the entire circumference of a bone and its periosteum was removed and in its place was inserted a glass tube. It was found that bone grew into the glass tube from the osseous tissue in the centre of the shaft to the exclusion of all other sources. Occasionally in injuries osteoblasts may be carried a short distance by the blood stream and form bone—e.g., over the sac of a false aneurysm; and the same is true of pieces of bone carried amongst the muscles, a case being given in a man with fracture of the femur, where all details are fully cited and figured. Flat bones, such as those of the cranial vault, can continue to grow and proliferate after losing their periosteum when they are re-implanted, an interesting case in the author's practice being quoted.

Another series of experiments on the same lines as those already mentioned was undertaken to test the osteogenic power of the epiphyseal cartilaginous plates in the regeneration of bone—e.g., the diaphysis was removed subperiosteally, one epiphysis damaged and the other left intact; metal caps were placed on the divided extremities of the shaft of the diaphyseal side of the epiphyseal cartilages, while the remainder of the shaft was removed. The author found that the new growth came from the epiphyses and not from "reproduced periosteum."

Physiologists and surgeons will alike find Sir William Macewen's book both valuable and suggestive. The results are extensively illustrated by numerous excellent photographs. Some of the author's own cases are particularly interesting, including one of restoration of the transverse ramus of one-half of the jaw by transplantation of bone in a girl.

Text-book of Ophthalmology. By Dr. ERNST FUCHS, Professor of Ophthalmology in the University of Vienna. Authorised translation by ALEXANDER DUANE, M.D., Surgeon, Ophthalmic and Aural Institute, New York. London and Philadelphia: J. B. Lippincott Company. 1911. Pp. 989. Price 25*s.*

THE fourth American edition of Professor Fuchs's "Text-book of Ophthalmology," following the third edition at an interval of only three years, shows the demand for this standard work. To a cursory examination it appears to be the same work, but whereas the last English edition was a translation of the eleventh German edition the present contains many additions, both in the text and in the illustrations, derived from the twelfth German edition. Most noteworthy amongst these is a completely new section of 67 pages on the general physiology, pathology, and therapeutics of the eye, which is placed in the forefront of the book. It is an admirable introduction to the more detailed considerations which follow. It presents the student with a thoroughly scientific survey of general eye conditions and their treatment, thus enabling him to obtain a view which places everything in its proper perspective. In the general physiology the coats of the eye are especially treated of in relation to their physiological functions, and the circulation of the lymph and intraocular pressure are given a position of prominence which emphasises their importance to the student of eye diseases. General pathology deals successively with causes of injury—physical, mechanical, chemical, and parasitic—degenerative processes, congenital defects, and hereditary influence, and the general symptoms associated with eye diseases. Under General Therapeutics hygienic regulations, dressings, physical methods (heat and cold, radiotherapy, Bier's hyperæmia, and so on), medical treatment (mydriatics, miotics, &c.), and causal treatment, including serum therapy, are considered.

The main part of the text of the book remains much the same as in previous editions. Here and there sentences or paragraphs are modified or brought up to date by reference to new suggestions and methods, such as, for example, Lagrange's operation for glaucoma. Throughout the translator has added his own comments, and in some cases whole chapters, especially in the sections on functional examination, motor anomalies, refraction, and operations. These additions are enclosed between brackets and signed with an initial. They are so frequent and sometimes so extensive that it is often difficult to know whether one is reading the author's or the translator's opinions. As we mentioned in reviewing the last edition, in our opinion the translator has reached, even if he has not already overstepped, the bounds of legitimate annotation. The undergrowth is getting so dense that it is difficult to see the trees. A translation should be as nearly as may be a replica of the original picture; it is impossible to retain the same balance of values in an oil painting and a mosaic. Nevertheless, Professor Fuchs's text-book has been, and still remains, *facile princeps* among the text-books on ophthalmology.

Studies in Cardiac Pathology. By GEORGE WILLIAM NORRIS, A.B., M.D., Associate in Medicine at the University of Pennsylvania, Visiting Physician to the Episcopal Hospital of Philadelphia, Assistant Visiting Physician to the University and to the Philadelphia General Hospitals, &c. With 85 original illustrations. London and Philadelphia: W. B. Saunders Company. 1911. Pp. 233. Price 21*s.* net.

A KNOWLEDGE of the morbid anatomy of the heart is an essential for the adequate consideration of the problems of cardiac pathology and for a proper appreciation of the clinical signs of cardiac disease. Many of the questions concerned are so definitely mechanical that a discussion of the size of the cavities and of their walls, and of the character, texture, and competence of the valves, becomes of the utmost importance. These matters are dealt with fully, and in an instructive and interesting manner in Dr. Norris's book. It is founded upon a study of the specimens in the museums of five of the most important hospitals of Philadelphia. Permission to photograph the specimens having been accorded to Dr. Norris, he has given 85 full-page plates, which obviously give the appearances with remarkable

fidelity. The plates are photographic reproductions, and the lighting and arrangement of the specimens have been admirably managed, so that each plate shows clearly the pathological condition which it is intended to illustrate. To each plate is given some explanatory letterpress, usually comprising brief clinical notes, a description of the heart and of the lesions it presents, and in some cases brief notes on the microscopical appearances.

The plates and accounts would alone make the book valuable and interesting, but Dr. Norris has further increased its usefulness by giving in addition a thoughtful and systematic account of the morbid anatomy of the heart, using his plates as illustrations. He deals first with acute endocarditis, differentiating the various forms of this condition and describing their effects. He then discusses chronic endocarditis, and considers separately the lesions of each of the valves, carefully describing their effects on the cavities and on the cardiac physiology. The other subjects considered are pericarditis, hypertrophy and dilatation, cardiac aneurysm, cardiac syphilis, and congenital lesions. The accounts given are not simply transcriptions of ordinary text-book descriptions, but are the outcome of an extensive study of the literature, to which numerous references are given. Statistics derived from special monographs and from the author's own experience are also given in regard to many conditions. Where opinions differ in regard to the explanation of some manifestation Dr. Norris is careful to recount them impartially. He refers to some interesting personal observations on the occurrence of endocarditis and pericarditis in association with tuberculous disease, to which special notice may be directed.

The book is printed in large type upon very good paper, and, as we have said, the illustrations are admirable. It should be a useful companion to anyone working in a museum or in the post-mortem room.

Maladies de l'Œsophage. Par MICHEL GANGOLPHE, Professeur Agrégé à la Faculté de Médecine de Lyon, Chirurgien-Major Honoraire de l'Hôtel-Dieu. Avec 39 figures intercalées dans le texte. Paris: J. B. Baillière et Fils. 1912. Pp. 115. Price, paper, 3 francs; boards, 4 50 francs.

THIS volume forms part of "Nouveau Traité de Chirurgie Clinique et Opératoire" published in fasciculus form under the editorship of A. le Dentu and Pierre Delbet. Within recent years the diagnosis and treatment of diseases of the œsophagus have been considerably modified, one might say revolutionised, by the development of the means of direct ocular inspection called œsophagoscopy. This, apart from the serious and distressing nature of the maladies, justifies the publication of monographs dealing exclusively with the region.

Professor Gangolphe, within a brief space of 115 octavo pages, presents a summary of the diseases and their treatment. He deals successively with the surgical anatomy, the examination of the œsophagus and its malformations. Next he considers spasmodic strictures of the œsophagus, the infectious and parasitic diseases, the results of inflammation and injuries of the structure. He then discusses the treatment of foreign bodies and of cicatricial contractions, and concludes with a chapter on new growths of the œsophagus. Prior to the development and practical application of œsophagoscopy these diseases baffled the practitioner and were dealt with blindly, more particularly in cases of foreign bodies and strictures which, perhaps, baffled the best observers and clinicians. It is a mattter of common knowledge that foreign bodies usually lodge in the upper part of the œsophagus near to its mouth, which contracts upon and grips the obstructing body. When the body is arrested lower down it is not uncommonly due to blind propulsion by a probang. Œsophagoscopy is steadily diminishing the unfortunate results of groping in the dark. Nevertheless, the modern scientific method of treatment continues to be received in some quarters in a stepmotherly manner. For these reasons it is to be regretted that in the present monograph more space was not devoted to œsophagoscopy and to the description and illustration of the more recent instruments devised for direct ocular inspection, the most important improvement in this connexion being the extensible double tube, by means of which the entire œsophagus can be inspected without any preliminary blind probing.

This volume is an introduction to diseases of the œsophagus, and will be found to contain a considerable amount of information compressed within a small compass.

Records of the School of Medicine, Cairo. Vol. IV. The Anatomy and Life History of Agchylostoma Duodenale (Dubini): A Monograph (Part II.). By ARTHUR LOOSS, Ph.D., Professor of Biology and Parasitology. Published for the Ministry of Education, Egypt, by the National Printing Department, Cairo. 1911. Pp. 613, with 19 Plates.

IT appears peculiarly appropriate that a work on the ankylostoma duodenale should be written in Egypt. One investigator has said that there are grounds for believing that about a fourth of the population of Egypt suffers from this intestinal parasite in a greater or less degree. It has also been contended that ankylostomiasis has existed in the country as far back as there exist any medical records in Egypt. Two German observers, Joachim and Schenthauer, have found in the Ebers Papyrus, which is said to date back to 1530 years before the commencement of the Christian Era and 200 years before the Jewish Exodus took place, some evidence which they regard as pointing to the prevalence at that far distant time of a disease with symptoms suggestive of Egyptian chlorosis. But whether this be so or not, it is undoubted that Egyptian medicine has always been much concerned with the treatment of parasitic worms. It is therefore fitting that a great helminthologist like Professor Looss, actually resident in Egypt, should gather up all the facts known about this particular worm, and should add his own practical and laboratory experiences, making together the most complete work on this subject which has yet been published.

This monograph may be described in a single word, which is in common use among Professor Looss's countrymen, as "colossal." It sets out, with characteristic Teutonic attention to detail, all the points associated with the life-history of the ankylostoma duodenale, its development and the distinctive features of the eggs and larvæ, special mention being made of its development outside the host. The modes of infection are fully discussed and the author's own personal experiences, whereby he contracted ankylostomiasis, are related; the migration of larvæ and the symptoms produced thereby in man are also considered. The comparative frequency of the two modes of infection, by the mouth and by the skin, are duly dealt with. Professor Looss appears to have had in the past some reason for complaint that his views were misrepresented by some rival helminthologists; and in making reply he does not spare his opponents. But he good-naturedly explains that he is cruel to be kind, and that as a medical man must sometimes inflict pain before he can heal, so his replies to his opponents are to be regarded in the same light. Progress in our knowledge of the life history of this worm, he thinks, has been hindered by some of the investigators, "though good doctors," being "poor biologists." The heavy task of revising the translation of this work into English has been very successfully carried out by Dr. H. P. Keatinge, director of the Medical School at

Cairo. Professor Looss gives his reasons for using the word "agchylostoma" instead of the term "ankylostoma," more generally used. It is impossible, however, to get over the fact that the Greek γ before a guttural is, and always has been, sounded as n, and was always so Latinised, and by consequence so Englished—e.g., ἄγγελος, *angelus*, angel, to choose one out of innumerable words in common use.

This monograph must prove of the greatest service to all who seek for knowledge respecting the ankylostoma duodenale and Egyptian chlorosis.

A Handbook of Medical Diagnosis for the Use of Practitioners and Students. By J. C. WILSON, A.M., M.D., Professor of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College, and Physician to its Hospital. Third edition, thoroughly revised. London and Philadelphia: J. B. Lippincott Company. Pp. 1438. Price 25*s.*

THE subject matter of this handbook is divided into four parts with a view of simplifying the arrangement of the topics in a department of medicine which has attained large scope and importance. The first part, "Medical Diagnosis in General," considers the boundaries and relations of the external parts and internal organs of the body, and is rendered more explicit by excellent photographs and diagrams. Students will find the remarks on case-taking well worthy of study.

The second part of the work is concerned with certain methods employed in diagnosis and their results. In considering physical examination, inspection, palpation, mensuration, percussion, and auscultation are well described, but the details given are rather too minute and numerous and are likely to give rise to confusion in the minds of students just entering on their practical studies in the hospital. The examination of the blood, the urine, and the sputum is fully discussed, and the conclusions to be drawn from the results are well set forth. The section on the examination of the nervous system deserves special praise. The preliminary considerations on the "neuron" will be found most instructive both by students and practitioners, whilst the significance of the various symptoms and the behaviour of the reflexes is plainly and succinctly laid down.

In the third part, "symptoms and signs"—i.e., the clinical phenomena of disease, both subjective and objective—the student will find many instructive hints and suggestions, which by helping him to cultivate his powers of observation will prove of service to him throughout his professional career. In the fourth part the diagnosis of various diseases is discussed according to the usual classification adopted in medical text-books, and sections are devoted to the diagnosis of the chronic intoxications, food poisoning, auto-intoxication, and constitutional diseases, such as gout and diabetes. This portion of the work will prove valuable for reference by the practitioner, for the information sought can be readily obtained, owing to the free use of large type to indicate the various subjects, each disease being described under the successive subheads of etiology, morbid anatomy (very briefly given), symptoms, physical signs, diagnosis, and prognosis. A full and complete consideration is thus given to each malady.

The present edition has been brought fully up to date, and the most important advances in the knowledge of diseases and their diagnosis have been incorporated. The illustrations are excellent and considerably aid in the elucidation of the letterpress.

Handbook on Military Sanitation for Regimental Officers. By K. B. BARNETT, M.B., B.Ch. R.U.I., F.R.C.S.I.rel., Major, Royal Army Medical Corps. With an Introduction by Lieutenant-General Sir HORACE L. SMITH DORRIEN, K.C.B., D.S.O., A.D.C. 1912. London: Forster, Groom, and Co., Limited. Pp. 176. Price 2*s.* 6*d.*

THIS small handbook has been prepared, as its title indicates, for regimental officers of the army at home and abroad, not only for examination purposes, but also as a guide in their daily duties in barracks, camp, and on the line of march.

The author very rightly draws attention to the fact that the popular idea of sanitation is "something to do with drains and smells," but it has a much wider significance, and in its application to military life includes all the methods to be adopted for preserving the health of the soldier in peace and war, at home and abroad. Nelson, in 1804, wrote: "The great thing in all military service is health; and you will agree with me that it is easier for an officer to keep men healthy than for a physician to cure them." The present Army Medical Service dates from the introduction of sanitation and many other much-needed reforms in the army at the end of the Crimean war. This was chiefly brought about by the historical letters of the late Sir William Russell to the *Times* describing the awful condition of the troops in the trenches and hospitals before Sebastopol. Sidney Herbert, Secretary of State for War, wrote in the year 1859: "If the education of military officers comprehended a knowledge of the principles of sanitary science, commanding officers might safely be left to their own judgment in adopting sanitary precautions for protecting the health of the men." In 1861 regular lectures on sanitary matters were delivered at the Military School of St. Cyr to the officers of the French army. In the United Kingdom it was not until 1906, four years after the South African war, that a "School of Army Sanitation" was opened at Aldershot at the instigation of Sir Alfred Keogh, K.C.B., Director-General of the Army Medical Service, for the instruction of officers and men of the British army; and by Army Order 3, dated January, 1908, all officers before promotion to the rank of captain and all cadets before appointment to commissions in the regular forces are required to pass an examination in sanitation, as was suggested by Herbert in 1859.

This small book will prove of value to regimental officers, as it is simple, practical, and easily understood, for technical terms have been avoided where possible, and, when included, are explained.

MISCELLANEOUS VOLUMES.

In *Charles Dickens as Editor*, by R. C. LEHMANN (London: Smith, Elder, and Co. 1912. Pp. 404. Price 12*s.* 6*d*), the reader will learn something of the constant vigilance, the unremitting toil, the constant weight of responsibility to public, author, and publisher alike, that are required of a conscientious editor. The book consists of a series of letters addressed to Dickens's sub-editor, Mr. W. H. Wills, covering the period of his editorship of the *Daily News*, *Household Words*, *Once a Week*, and *All the Year Round*—viz., from 1848 to 1870. There is little or nothing of special medical interest in the book, the only references by name that we can find to medical men of note being to an expected call from Mr. (later Sir) Erasmus Wilson, and to Sir Charles Shaw, "for many years the first surgeon at the Middlesex Hospital." The violent opposition in 1856 of Miss Harriet Martineau to the factory laws is interesting. She is said to have stated in a very vituperative pamphlet championing the

manufacturers that "The issue to which the question is now brought is that of the supersession of either the textile manufactures or the existing factory law. The two cannot longer coexist." The factory laws have, however, not only continued to exist, but their application has since been widely extended, while the textile industries are not yet defunct. In one of his letters Dickens says: "I cannot bear the notion of the 'Academy for Cooks' going next to 'Illiberal Doctors'" (published in *All the Year Round*, February, 1863), but whether it was the purveyors of meat or the purveyors of medicine for whose susceptibilities he was so solicitous we are not told. He also tells us that being shaken by the constant express travelling occasioned by his reading tours: "Said the doctors, 'Take warning. Stop instantly.' I made the plunge and became, please God, well." Truly a sensible patient! One little touch of real human charity may be earnestly commended to the attention—and imitation—of the numerous tribe of vicarious philanthropists, both in and out of Parliament, who so earnestly yearn to alleviate the sufferings of the unfortunate at the doctor's expense. He writes in January, 1856, to Mr. Wills as follows: "Will you send John [his own servant] to Mr. Morgan, our family apothecary (John knows his house near Russell-square), with a note asking him to call upon you at the office at a certain time? When he comes, will you tell him that you have it in charge from me to beg him to charge his attendance, medicines, &c., for Mrs. Hogarth in her illness to my account, and just to say nothing at all about the matter to her, or her family, or any one else."——We recognise the grand novelist and moralist that Dickens was when we try to read the modern novel written to caricature and chastise our social vices. No one could be more wildly sensational than Dickens, and no one more hopelessly sentimental; yet the English-speaking world hung on his lips, and time after time social reform followed his teachings. Those who delight in slang, socialism, or sensation, one or all of them, may sup full with horrors by a perusal of *An Enemy to Society*, by GEORGE BRONSON-HOWARD (London: T. Werner Laurie. 1912. Pp. 350. Price 6*s*.). But we doubt if any reformation will follow upon his onslaughts on the wicked. A socialist of criminal instincts works upon a poor tradesman in New York through the commercial wrongs inflicted upon him by an unscrupulous trust magnate to kidnap the latter's infant son. This son is brought up as an "enemy to society," and instructed in the arts of card-sharping and burglary under the guise of philanthropic socialism, and taught that to rob the wealthy oppressors of the poor is the whole duty of modern chivalry. The lad, apparently being devoid of any conscience to admonish him that even those desirous of doing good must not attain it by means in themselves evil, throws himself with the zest of unsophisticated innocence into a career of crime, attaining at the same time an enviable reputation as a philanthropist with the fruits of his crimes. Needless to say, his instructors, whose love for the oppressed poor is by no means equal to their hatred of the oppressing rich, show no such weakly sentimentality about their own shares of the plunder which he is their catspaw for obtaining. When the hero falls in love—as it happens, with the ward of his unknown father—he awakens to the falsity of the fiction wherewith his actions have hitherto been guided, and it recoils on his mentors like a boomerang. Presumably the book is intended to convey a moral. Whether it is that socialism is the ideal morality or that socialists are *au fond* as selfish as other people, that nature is stronger than nurture or nurture than nature, it is hard to say. All that we have been able to deduce from the story is that card-sharping and burglary are not only not reprehensible, they are indeed actually righteous and salutary, provided they are practised against trust magnates and other unscrupulous wealthy people. The book contains, however, a remarkable *exposé* of the methods of the New York police, and of the political and administrative corruption in that city.

In THE LANCET of April 22nd, 1911, p. 1090, we discussed editorially the plan for the organisation of a National Medical Service, elaborated by Professor Benjamin Moore in his book "The Dawn of the Health Age," and while admitting that the ventilation of such views, leading as they do to thinking about the fundamental issues, serves good purpose, we expressed our conviction that such a plan as was there proposed was not at present at any rate practical, if for no stronger reason at least because it would be unpalatable to the medical profession and the public alike. This same comment applies equally to *A National Medical Service*, by F. LAWSON DODD, M.R.C.S. Eng., L.R.C.P. Lond. (Fabian Tract, No. 160. London: The Fabian Society. 1911. Pp. 20. Price 2*d*.), which is a very well-written presentation of the same general principles, lacking their detailed mode of application, as those submitted in Professor Moore's book. Mr. Dodd, however, urges that the transition could be effected without undue disturbance by increasing the efficiency of the public departments of medicine until the individual demand for curative advice and medicine became largely reduced as a consequence of the collective demand for information as to how to suppress or improve the callings and home conditions that kill and maim. Thus, he thinks, the centre of gravity of medicine will leave the curative and tend more towards the preventive side of medicine, rendering practicable in the future the establishment of a National Medical Service.——Mr. J. B. Pike, M.R.C.S. Eng., honorary surgeon to the Loughborough General Hospital, discusses the National Insurance Act in a pamphlet bearing that title (Loughborough and London: John Corah and Son. Pp. 15. Price 3*d*.) in both a briefly explanatory and a critical manner. He describes the intention and scope of the Act; the obligations upon employers, employed, and the revenue; the benefits; the relation of the Act to the medical profession and the Friendly Societies, to the Poor-law service, and to the voluntary hospitals. In regard particularly to the relation of the Act to the medical profession Mr. Pike insists that the proposed arrangements under the Act would perpetuate some of the worst features of the Friendly Society organisations; that Mr. Lloyd George is mistaken in assuming that the present contract arrangements are largely countenanced, for "some of them are disapproved by the General Medical Council and unrecognised in practice"; that as a matter of fact the suspension of medical benefits under the Act, so far from being disastrous for the doctors, would be the best thing in the world for them; and that "by the organisation of public medical services throughout the country the profession can work side by side with the Act and in coöperation with its legitimate aims." This last course he regards as the true solution of the present *impasse*, the feeling in favour of which is rapidly gaining ground. In an appendix he gives the rules and by-laws of the Loughborough Provident Medical Association established just 20 years ago, and consisting of "all medical men willing to coöperate in the work of the institution at present practising privately in Loughborough, with such additions as may from time to time be decided upon by the committee," wherein such essential principles as freedom from outside control, choice of doctor, and an income limit of £2 a week are in successful operation.

In *A Digest of the Laws and Regulations of the Various States Relating to the Reporting of Cases of Sickness* (Washington: U.S A. Government Printing Office. 1911. Pp. 191), Assistant Surgeon-General John W. Trask, of the United States Public Health and Marine Hospital Service, abstracts these

laws under the heading of the States arranged in alphabetical order, analyses them in tabular form, and appends extracts in the *ipsissima verba* from recent laws enacted by the various States on the subject. The peculiar character of the United States constitution, whereby each individual State is absolutely autonomous in all matters of police, which includes care for the public health, renders a lack of coördination a source of peril to neighbouring and even remote States, in consequence of the facility of commercial and personal intercourse due to good roads and rapid transit. Some of the author's remarks, however, apply to all countries. For instance, a failure on the part of practitioners to perform the essential duty of notification of prescribed diseases is not confined to the United States. Similar defaulters are to be found occasionally in other countries. Surgeon-General Trask suggests that "where the State issues licences permitting the practice of medicine, one of the most reasonable penalties which it might be expected to impose on physicians who did not comply with the laws [relating to notification] would be the suspension or revocation of the licence." In regard to the vexed question as to what diseases should be made notifiable, there is wisdom in the remark that "there would seem to be decided advantages in making notifiable all preventable diseases, and that these might be considered to include infectious diseases, certain parasitic diseases, occupation diseases, and certain diseases due to damaged foods." The pamphlet is a useful publication of reference for those interested in the study or practice of public health.

JOURNALS AND MAGAZINES.

Æsculape. Vol. II., No. 2. February, 1912. Paris: A. Rouzaud.—In this number Dr. Laignel-Lavastine writes a final article on the Utility of Classical Studies for the Medical Career. He considers the influence of such studies on the formation of the medical character, and traces the decay of culture in French medical students since 1902 to the abolition of compulsory classical studies, for the restoration of which to the curriculum he submits a scheme. Dr. H. M. Fay continues his researches on the "Cagots" and the Church. According to him the "cagots" (as generally understood, cretins) were really the lepers of the Middle Ages, and he reproduces several of the grotesque heads and figures from fonts and capitals to confirm his contention. Count Robert de Montesquiou discusses the peculiar art of Rodolphe Bresdin, and Dr. Lucien Libert, in "Paysages et Cités d'Orient," gives a fascinating account of the Greek lands. Dr. Léon Demonchy traces historically the ideas on the therapeutic value of music, and essays to show that music-therapy has its foundations not merely in empirical observation but in true physiological conditions. Dr. H. Gougerot and Dr. M. Dogny give a very interesting antiquarian study of hospital internes, the "élèves chirurgiens" of early days, founded on their discovery of certain hospital documents of the old Hôpital St. Louis and its parent institution, the Hostel Dieu. The decree, dated June 9th, 1679, establishing the order of "élèves chirurgiens" is given. M. André Baud makes a contribution to radium-therapy in tuberculosis.

The Child.—In the March issue Mrs. Mary D. Scharlieb, M.D., contributes an excellent article on the morals of the young. She brings under consideration the factors in the making of morals—heredity and environment; the foundations of character—discipline, obedience, self-denial, and self-control; hindrances to morality—overcrowding, poverty, improper feeding or clothing, vices (such as juvenile smoking, drinking, and gambling), and premature emancipation from discipline; helps to morality, in which she includes (besides the opposites to the hindrances) team games and military training. With regard to the last-named she says: "Military training is useful in much the same way as team games, and probably one of the greatest boons to the young people of the land would be compulsory military training for a short time during adolescence, but until this end is attained we must seek to develop a very considerable extension of the present movement for the formation of Territorial Corps, Lads' Brigades, Boy Scouts, and Girl Guides. The moral element comes into all these, and into none more prominently and happily than into the Boy Scout movement with its simple vow of obedience, of self-denial, and of loving help to the aged and defenceless." Dr. Alice Burn discusses the clothing of children in relation to physique and development. Dr. David McKail considers eyestrain in school children, and Edith H. Hewett the teaching of deaf children. "A Child Garden in a Slum" is the title of a delightful penpicture of a free kindergarten in Salford, for children aged from three to five years, by Mrs. W. F. Lofthouse, who urges on groups of leisured women citizens this opening for a definite social service, which costs about £130 a year. Dr. L. D. Cruickshank describes child welfare work in Dunfermline. Professor C. H. Herford, Litt.D., gives a biographical note of William Henry Herford, a pioneer of child study, and Madeline Bateman describes Westfield College, Hampstead, for women students of the University of London. The Birmingham and District Cripples' Union is the subject of a paper by Mary Champness.

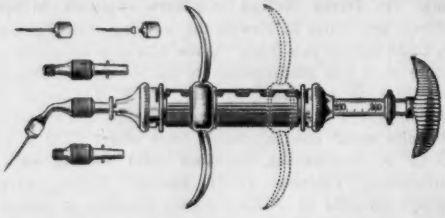
VOYAGE D'ÉTUDES MÉDICALES.—The second Voyage d'Études Médicales of the season of 1912 will take place from Sept. 1st to 14th under the presidency of Professor Landouzy, when the following route will be observed: La Motte-Beuvron (sanatorium), La Roche-Posay, Néris, Evaux, La Bourboule, Mont-Dore, Saint-Nectaire, Vic-sur-Cère and Le Lioran (climatic stations), Royat, Durtol (sanatorium), Chatel-Guyon, Vichy, Bourbon-l'Archambault, Bourbon-Lancy, St. Honoré-les-Bains, Pougues. For further information application should be made to Dr. Carron de la Carrière, 2, Rue Lincoln, or to Dr. Jouaust, 4, Rue Frédéric-Bastiat, Paris.

CHELSEA CLINICAL SOCIETY: ANNUAL DINNER.—This society held its annual dinner at the Hotel Richelieu on March 20th, the day after the conclusion of its annual clinical debate. The President, Dr. J. A. Mansell Moullin, was in the chair, and the guest of the evening was Professor Einthoven, of Leyden, to whose paper on the Electrocardiogram (published on p. 853 of our present issue), many complimentary references were made by the speakers. The chairman, in proposing the toast of the society, congratulated it on having now, in its fifteenth year, a suitable meeting-place in the medical school of St. George's Hospital. This had added much to the success of the meetings, and the members were very grateful to the hospital staff for lending the rooms. Dr. T. B. Hyslop responded in a humorous speech, and spoke of the increasing use and success of the society. The health of the guests was proposed by Dr. T. W. Parkinson, who referred to the international and non-political nature of the brotherhood of science. He said that the medical profession, although it practised conservative surgery, prescribed a liberal diet, performed radical operations, and held socialistic theories of friendship, had no other politics. Professor Einthoven, in his reply, paid a graceful tribute to the society, and remarked that the electrocardiogram had at least demonstrated the good-heartedness of English medical men. Dr. A. Waller, who was called upon for a speech, said that he had never dreamt of the practical possibilities of the instrument designed by Professor Einthoven. Dr. R. S. Trevor, dean of St. George's Hospital Medical School, the Mayor of Chelsea, and Professor Hugo Marcus, of Buenos Aires, also responded for the visitors, and the toast of the President and officers of the society was entrusted to Dr. Campbell Boyd. Dr. Mansell Moullin (president) and Dr. G. A. Simmons (treasurer) replied, and a successful evening was shortly afterwards brought to a close.

New Inventions.

DENTAL HYPODERMIC SYRINGE.

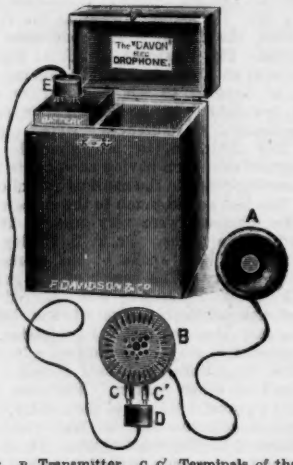
Messrs. Burroughs, Wellcome, and Co., Snow Hill Buildings, London, E.C., have made an improved pattern of their dental hypodermic syringe, which has been strengthened and simplified in some of its parts. The syringe shown in the illustration is made entirely of metal, is easily taken apart for cleaning and sterilising, and as easily put together again. No packing is required round the piston, which consists of a solid plain metal plunger, ground to fit the barrel accurately. The barrel, cap, nozzle, and needle attachment are locked together by a simple modified form of bayonet catch, which



does away with screws, washers, and other parts easily damaged or lost. The finger-grip can be fixed at any point on the barrel, and there is a screw on the plunger rod which regulates the amount of fluid injected. Unmounted needles are used, and the metal case in which the instrument is packed forms a sterilising tray. The qualities which the manufacturers claim for this syringe—namely, efficiency, durability, stability, and convenience—are well substantiated in actual use.

THE "DAVON" OROPHONE.

THIS electrical aid has a different tone to any other at present on the market. This in itself will make it of value to cases which can be aided by this class of instrument, as a certain proportion of patients will prefer it to any other design. It will not, however, suit such a wide range of deaf cases as some of the appliances already known to us. With this instrument, after the ear has been educated to it, the suitable



A, Receiver. B, Transmitter. C, C', Terminals of the transmitter into which the connecting plug D is inserted; these terminals are of different size, so that the plug can only be inserted in the right manner. D, Connecting plug to transmitter. E, Connecting plug to battery.

patient will be able to pick up speech from a distance, as, although the instrument is not a loud one, the transmitter diaphragm is not "damped" in any manner. The buzzing present in so many "electrical aids" is abolished in the "Orophone," which would serve as a preparatory instrument until a more powerful one could be used. The transmitter has no tab to fasten it on to the clothing, or any means of being attached to the battery, so that the battery may be used as a pedestal or support. The receiver ear-cap is unnecessarily large for the size of the diaphragm used, and the diaphragm is not adjustable, while the battery is too large to be carried in the pocket. The flexible cords are good and well fastened off, so that the mechanical strain comes on the covering and not on the conductor; but the receiver cord is too long, and the method of fastening the cord on to the transmitter entails taking the transmitter to pieces to put on a new cord. The instrument may not prove very economical, because there is no switch in circuit to use when not listening to any sound, while the current consumption is not low. It has been tried on a number of cases and most patients could hear distinctly better with it than without it. The instrument is made by Messrs. F. Davidson and Co., 29, Great Portland-street, London, W.

A NEW PORTABLE OPERATING TABLE.

THIS table, recently made to my design, consists throughout of finest seamless steel tubing, except the hinged joints, which are of solid brass, and the ratchets, which are of pressed steel. The table is absolutely rigid, very strong, and weighs a little over 30 lb. It can be unpacked, set out, and repacked in a few seconds. When closed it measures $39 \times 21 \times 3\frac{1}{2}$ in. (Fig. 1), when open it is $71 \times 36 \times 21$ in. (Fig. 2), but it can be manufactured less than 3 ft. high. The head legs are slanted, giving a large base, and suitable for the Trendelenburg and allied positions; all the legs are fitted with solid rubber feet. The illustrations show the table closed and open, with the long foot extension dropped, but it can be fixed in any of the positions required in modern surgery. Lithotomy uprights and straps are provided, and an arm-rest and instrument trays which simply catch on to the side of

FIG. 1.

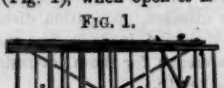


FIG. 2.

the table are added. The difficulty met with, even in operating theatre tables, of over-extending the arm, as required in dissection of the axilla, has been met by a detachable rotatable bar to which the arm may be attached and held horizontally at any angle. In addition an upright bar can be fitted on to any of the legs, or at any point on the upper horizontal bars, on which may be hung a lamp, an infusion apparatus, and so on; this also carries a candle-socket. All the tube joints are welded and rounded. The ratchets of the head and foot extensions are detachable and fitted with special sockets preventing any save intentional movements. The table is nickel-plated throughout, but can be enamelled if preferred. For travelling purposes a canvas bag, or a light tin case, or a wooden case, which becomes an instrument table if required, have been provided by the makers, Messrs. James Gibbons, of Wolverhampton.

Wolverhampton. C. A. STIDSTON, M.D. Lond.

THE LANCET.

LONDON: SATURDAY, MARCH 30, 1912.

Coal Smoke Abatement.

MUCH good work has been done in the direction of abating the smoke nuisance since the question was asked in THE LANCET some 17 years ago, "Is the Smoke Nuisances Act properly enforced?" That question received an emphatically negative answer from us, with a positive proof that the provisions of the Act were practically ignored by our public health authorities, the evidence of whose wanton disregard was patent on all sides. Three years later, however, there were signs of the question receiving serious attention, for in 1898 the Coal Smoke Abatement Society was formed under the guidance of its first and present President, Sir WILLIAM RICHMOND, with Dr. HAROLD DES VŒUX, the treasurer, as one of its leading spirits. The society has since done excellent work by prosecuting practical inquiries to show the extent to which nuisances existed and by pointing the way to remedy. From time to time we have published in our columns the results of the practical investigations referred to; the opinion of sanitary authorities has thereby been stimulated, and at last the public is realising that the evil is real and one that should be prevented. So much progress has been made in the comparatively short time during which the Coal Smoke Abatement Society has existed that it feels justified in reporting that "the result of the modern crusade is already apparent in a decrease of the smoke-laden fogs which a generation ago made existence in the metropolis a burden for several months in each year." The society has set itself a great task, but the results are certainly encouraging.

There is much more to be done, however, as was shown in the report from THE LANCET Laboratory which appeared recently in our columns[1] as to the enormous amount of soot which annually falls upon the metropolitan area. When it is shown that from 60,000 to 70,000 tons of soot are showered upon our public buildings and streets in the metropolitan area every year, it is clear that not only is there a sheer wastage of fuel going on, but also an output of products, solid and gaseous, which are a menace to the public health and a source of destruction to property. The metropolis is not alone in committing this offence, for recently we have received a very carefully compiled and interesting account of the smoke scourge in Leeds,[2] in which the authors record that a comparison of THE LANCET Laboratory figures in regard to London shows on the whole a very ominous agreement with the results obtained in Leeds. For example, the annual soot deposit from Leeds rain varies from 539 tons per square mile to 25 tons; in London from 426 tons to 158 tons, the mean for the Leeds area being 220 tons, that of the London area 260 tons per square mile. Again, the amount of sulphuric acid in the London city area was about 69 tons per square mile, whilst in Leeds the average for the four city stations was 65 tons per square mile. It is rare indeed that the air, even in the country, can be shown to be free from atmospheric contamination due to smoke. The importance of these inquiries is obvious when health statistics in relation to smoke-laden places show without doubt that coal dust, smoke, and soot increase the death-rate from acute lung diseases. The great damage inflicted upon vegetation, upon the fabrics of our buildings, and the stores of our merchandise has also to be sorrowfully remembered.

Considerations of the foregoing description make the International Smoke Abatement Exhibition, held this week under the auspices of the Coal Smoke Abatement Society at the Royal Agricultural Hall, of special interest. It is clear, at all events, that a movement good from both a health and economic point of view has come into real being. "Gas companies and electricity supply undertakings," we are told—and a personal inspection of the exhibits which we have made shows that it is true—"vie with each other in bringing before the notice of the community the special advantages which their systems of cooking and heating offer to the householder." Natural and artificial smokeless fuels are being constantly pressed upon the public, and in various realms of industry it is generally recognised that scientific principles can now be so applied to the production of power that in most cases, at all events, it is in a pecuniary sense advantageous to avoid the emission of unreasonable volumes of smoke. The remarkable reduction which has taken place in factory and domestic smoke is a sign clear enough to encourage the hope that a clean and pure air is within a measurable distance. We congratulate the Coal Smoke Abatement Society on the excellent progress which it is making, and we are glad that we have been able to contribute to this success by our own practical investigations, as well as by the publicity which from time to time we have given to the urgent need there is for removing a reproach from our midst.

[1] The Sootfall of London: Its Amount, Quality, and Effects, THE LANCET, Jan. 6th, 1912, p. 47.

[2] Smoke, a Study of Town Air. By Julius B. Cohen, Ph.D., B.Sc., F.R.S., and Arthur G. Ruston, B.A., B.Sc. London: Edward Arnold. 1912. Pp. 88. Price 5s. net.

The Treatment of Leprosy by Nastin.

FOR many years search has been made to discover a specific for leprosy, a remedy which might be relied upon to act in the majority of cases as mercury does in syphilis or quinine in malaria. Though various drugs have been brought forward at one period or another as cures for leprosy, none of them have stood the test of time, and each in turn after a brief period of popularity has fallen into disfavour. Some cases of the disease improve unaccountably for a time without having been submitted to any method of treatment, and it is a well-recognised fact that the mere removal of a leper from his squalid and filthy home to the better hygienic surroundings of a hospital or asylum often produces, for a time at least, a marked improvement in his state of health. Leprosy in many instances follows an irregular or erratic

course, the progress of the disease being apparently arrested without any obvious cause, and the literature of leprosy furnishes many examples in which nature entirely unaided by drugs has brought about what may be regarded as an approximation to a cure. When with his knowledge and consent a leprous patient is placed under treatment by a new remedy his mental attitude seems to be stimulated by the renewed hope of recovery inspired by the new drug, and he is seemingly apt to exaggerate unconsciously his own feelings and to express himself as being much benefited, at the same time devoting himself to his work with greater zest and alacrity. In the circumstances it is obvious that there are peculiar difficulties to be encountered in estimating the precise value of any method of treatment for leprosy, and it is admitted that errors in judgment are particularly liable to arise in this connexion.

Few modes of treatment brought forward in recent years for leprosy have raised such hopeful anticipations at their introduction as did nastin, which was introduced some six or seven years ago by Professor G. DEYCKE, now of Hamburg, and formerly of the Turkish Government Medical Service. At the February meeting of the Society of Tropical Medicine in London Professor DEYCKE read a paper on the treatment of leprosy by his method and the results so far obtained by it. In the statistics which he brought forward he dealt with 529 cases which had been treated by 69 different medical men in various parts of the world. He stated that he had excluded from his tables any cases treated personally by himself for the reason that the fate of a new remedy should rest as far as possible in the field of general practice, and not in the hands of the discoverer. Of the 529 cases, 13 were reported as cured, 34 nearly cured, 131 considerably improved, and 154 as improved—a total of 332, or 62·76 per cent., in which beneficial results were attributed to the method of treatment. The improvement is said to have been almost equally shared by the three forms of the disease—the nodular, the anæsthetic, and the mixed, and Professor DEYCKE has pointed out that he has never in his published works spoken about the "cure" of leprosy by nastin, but always of "the arrest of the disease" or "the improvement in the symptoms and the general health of the patient." He holds it advisable in special cases to speak of nothing more than "temporary freedom from the presence of B. lepræ." But even with these restrictions he claims that his results are very satisfactory, and he repeats what he maintained at the Bergen Congress on Leprosy in 1909, that "the nastin treatment, if consistently and rationally applied for a sufficient time, produces in a large percentage of cases of leprosy more or less extensive improvement in the 'leprous systems' and in the general health of the patients." He also emphasises the fact that he attaches less importance to the "qualitative" results of the treatment than to the "quantitative," contending that he is justified in the assertion that nastin, though no "wonder-remedy," has proved "quantitatively" equal to the claims which he had put forward on its behalf.

When nastin was first brought forward some difficulty was experienced in finding sufficient opportunities for trying its effect on any large scale, and repeated applications were made by Professor DEYCKE and his supporters to the British authorities to have the remedy tested in one or other of the colonies where leprosy was prevalent. Ultimately the Colonial Office agreed to allow Professor DEYCKE to test nastin in the public leper asylum at Mahaica in British Guiana, the work to be carried out in coöperation with the colonial medical officers. During a period of six months Professor DEYCKE conducted the treatment by his method, and at the same time instructed the Government medical men in the details which were to be carried out after his departure, so that there was no question of the treatment being administered otherwise than according to its originator's own method. Last year Dr. K. S. WISE, the Government bacteriologist (who is also, we understand, the director of public health) for British Guiana, presented a report to the Colonial Office showing the results achieved in the 135 lepers who had received the treatment between December, 1908, and September, 1910.[1] Dr. WISE reported that a few seemed to have improved considerably, that some were worse, and that the majority remained *in statu quo*; he added that since the favourable results were so few a longer and wider experience could alone determine whether the successful cases were merely instances of natural improvement irrespective of the nastin treatment, or were, on the other hand, really due to the action of that remedy alone. In continuation of Dr. WISE'S observations the Colonial Office has recently issued a "Further Report on the Nastin and Benzoyl Chloride Treatment of Leprosy at the Mahaica Leper Asylum from September, 1910, to September, 1911," by Dr. E. P. MINETT, assistant bacteriologist for British Guiana. This officer had taken Dr. WISE'S place during the latter's absence on long leave in Europe. The report deals with three groups of cases, 24 patients being treated with nastin, 71 with benzoyl chloride, and 8 receiving no medicinal treatment at all. Dr. MINETT appears to have no hesitation in arriving at his conclusions. He regards nastin as being apparently of little value in cases of leprosy, and the subcutaneous injection of benzoyl chloride in sterilised oleum petrolatum he looks upon as of doubtful utility, though in the figures which he presents the latter shows a slightly higher percentage of improvement in the cases treated with it, as compared with the former. But in his opinion benzoyl chloride in petroleum oil is extremely valuable as a nasal spray or as a paint for application to ulcerating surfaces; it quickly renders the discharge free from the presence of bacilli, and he strongly recommends its regular use for this purpose in all leper asylums. The so-called destruction of the bacilli is, in Dr. MINETT'S view, of limited value as an indication of the effects of treatment.

The results obtained in the leper asylum at Mahaica appear to be very different from those reported to Professor DEYCKE by the 69 medical practitioners already mentioned. The British Guiana cases were excluded from Professor DEYCKE'S statistics, partly because he had himself treated some of them for six months, but mainly because, as he stated in his paper, he had no figures as to the actual results; he adds, however, that he knew that a number of the cases had been discharged from the asylum, bacteriological

[1] THE LANCET, July 22nd, 1911, p. 237.

examination having proved the absence of B. lepræ in these instances. But it appears to us the figures were available if wanted, for the reports by Dr. WISE and Dr. MINETT had already been published before Professor DEYCKE'S paper was read. It is, of course, possible that selection of cases for the nastin treatment might have had an important influence on the statistics. For if early cases were selected by the majority of the 69 practitioners satisfactory results of treatment would be more likely to be obtained than if advanced cases had been chosen. We have it on Professor DEYCKE'S authority that a good number of the lepers treated by nastin at the Mahaica Asylum were in an extremely bad condition as regards the disease; and it is, therefore, possible that such cases would not readily derive much benefit from the nastin treatment. With this conflicting evidence before us it is not easy to arrive at a definite conclusion, but in the circumstances we think we are justified in saying that up to the present the evidence put forward in favour of nastin is hardly convincing enough to lead to its general acceptance. Further observation and experience seem to be required before a correct opinion regarding it can be reached.

Annotations.

"Ne quid nimis."

THE COAL STRIKE.

BY no one is the approach of misery among the poor more easily detected than by the medical man, and now the signs have become very obvious to those whose daily work it is to superintend our public health or administer our great charities. It is very difficult, therefore, to contemplate without keen anxiety the outlook that this disastrous coal strike may yet last some weeks—or that, at any rate, it may be some weeks before a general return to work takes place. But that is the prospect which has to be faced. The calmness and order which have so far characterised the behaviour of the public under cruel trial is a thing of which we may all, as a people, be justly proud. The necessary self-control is putting a severe strain upon thousands of persons, as all our readers know, but the attitude must be maintained, and those of us who can help their weaker brethren in any of the sad concomitants of a national tragedy will find in such actions the bravest support for themselves.

MURDER BY POISON.

TRIALS for murder by poison are of special interest, both to the medical man and to the student of crime from the legal point of view. Of necessity a murder by poison is always premeditated and practically always one carried out in secret. Evidence calculated to bring the crime home to the accused is therefore, as a rule, purely circumstantial and dependent upon problems of chemical analysis and a knowledge of pathology and of differential clinical diagnosis. Medical murderers are, we are thankful to say, few in number, but naturally enough when a member of the medical profession does sink so low as to commit murder he chooses poison as the means of crime. He can obtain it without suspicion, and also in many cases has opportunities for administration which are denied to laymen. Three of the most notable trials for murder by poison in the last century were those of Lamson, Pritchard, and Palmer, all three medical men. The trial of the last-named, a copy of the proceedings at which now lies before us, created a great sensation at the time, and is still a leading case in treatises on medical jurisprudence as to strychnine poisoning.[1] The medical points raised in the trial were many and various, among the chief being the conflict of evidence as to whether the symptoms from which Cook suffered were indicative of strychnine poisoning, tetanus, "idiopathic" or traumatic, or, it is surprising to read at the present day, angina pectoris. Again, no strychnine was found in the body after death by the Crown analysts, although various analysts called by the defence testified that there should have been no difficulty in finding it, had it been administered so as to cause death. Mr. Knott has contributed an interesting introduction, giving a *précis* of the Attorney-General's opening speech for the Crown. He has also printed two appendices, of which the second gives an account of the judges (there were three) and the counsel engaged in the trial, while Appendix I. is a reprint of an astonishing pamphlet which was circulated after the trial, addressed to Lord Chief Justice Campbell, and purporting to be written by the Rev. Thomas Palmer, brother of the prisoner. Thomas Palmer denied the authorship, and the letter is attributed "to a blackguard barrister." That William Palmer was guilty, not only of the murder of Cook but of several other murders for which he was not tried, there can be no reasonable doubt, and the proceedings at the trial form a notable example of careful and judicial reasoning of interest to every medical man. Mr. Knott makes no mention in his introduction of a story which has often been told, but which is worth recalling none the less. It is said that after the conviction of Palmer the inhabitants of Rugeley, being distressed at the evil reputation which their town had obtained, petitioned the then Prime Minister for leave to change the name of the town. They were uncertain by what new name to call it, and the Prime Minister kindly suggested that it should bear his own name. The deputation were much flattered until one of them suddenly remembered that the Minister's name was Palmerston. So Rugeley the town remained. Is there any basis of fact for this story?

EXPERIMENTS UPON LIFE WITHOUT MICROBES.

IN practically all vertebrates the alimentary canal contains very large numbers of bacteria, some of which appear to serve a useful purpose and therefore to be in a sense symbiotic. It has long been a matter of debate as to whether life is possible without these organisms, and experiments have hitherto given results which were by no means conclusive. Some interesting observations are recorded upon this subject in the *Annales de l'Institut Pasteur* of Feb. 25th by M. Michel Cohendy. Metchnikoff has shown that some invertebrates are bacteria-free. His researches demonstrated the aseptic character of the intestine of the scorpion and that of several species of mites. Certain helminthes, parasitic in man, such as young round worms, have also been found to be bacteria-free. Wollman has been able to rear the larvæ of flies (Lucilia Cæsar and Caliphora vomitoria) under sterile conditions. Experiments upon vertebrates have been attended by great technical difficulties and have given discordant results. Schottelius has devoted several years to the investigation of this question, using the hen's egg. His results have led him to the conclusion that life is impossible without microbes. Mme. Metchnikoff succeeded in raising under sterile conditions a series of tadpoles, but they were cachectic and puny. Nuttall and Thierfelder endeavoured to rear fœtal guinea-pigs removed

[1] Notable English Trials: William Palmer. Edited by George H. Knott. Edinburgh and London: William Hodge and Co. Price 5s. net. Pp. 320.

by Cæsarean section; the animals increased in weight normally, but the experiments had to be interrupted on the tenth day owing to technical difficulties. M. Cohendy has carried out observations upon the development of the chick under sterile conditions partly in Professor Schottelius's laboratory at Freiburg, partly at the Pasteur Institute in Professor Metchnikoff's laboratory. He has overcome the technical difficulties encountered by previous workers by devising ingenious apparatus, the first small, the second larger, enabling his observations to be prolonged. He has taken care to control his results by rearing chicks under precisely similar conditions, except in regard to the sterile nature of their food, and also by rearing others under normal conditions outside his apparatus. He has found that in all points except one the chickens raised under sterile conditions were similar to the controls, the only difference being in regard to their digestive functions. The appetite of the sterile animals is greater than that of the others, and their dejecta are more frequent and more abundant. The development in both was equal, and the sterile animals were at least as robust as the controls, although in some instances neither were as heavy as those reared outside the apparatus, this being due probably to the more confined space in which they were placed and to the other conditions of the experiment. M. Cohendy found also that the sterile chickens presented a very great resistance to death by cold, damp, hunger, and thirst. Those of them allowed to continue their life under ordinary conditions after a time of sterile life developed into well-grown adults. M. Cohendy concludes that life under sterile conditions is possible, and that it does not involve any disadvantages for the organism. At the same time he points out that his experiments show that though the intestinal flora are not indispensable they are yet utilised, since apparently the sterile animals require more food and digest it less completely than the normal ones. These results confirm those of Nuttall and Thierfelder, who found that cellulose was not digested by their sterile animals. The fact that these sterile chicks grow normally after the end of the experiment, although their intestines rapidly develop an abundant bacterial flora, suggests that the preparation for the struggle against these microbes is hereditary, and not the result of individually developed immunity. Professor Metchnikoff, in collaboration with four of his pupils, has obtained similar results with Pteropus medius. These observations are of far-reaching interest and merit careful notice.

THE CONSTITUENTS OF BUTTER.

IN THE LANCET of March 16th, p. 751, an account was given of a case heard at the Tower Bridge police court, the subject matter of which arose out of the alleged use of milk powder for the adulteration of butter. On that occasion it was a point at issue whether the milk powder found upon the defendant's premises was intended to be added to the butter which they manufactured, and the finding of the magistrate apparently did not deal decisively with the question whether the use of it, if proved, would constitute an offence under Section 3 of the Butter and Margarine Act, 1907, when he dismissed the case with £40 costs against the Board of Agriculture. In a case recently before Mr. Garrett, however, at the South-Western court, the intended use of the milk powder was not disputed, and evidence was given on both sides as to the desirability of its being employed, as, indeed, was also done before Mr. Rose. It was contended by Mr. MacMorran, K.C., for the defence that the use of milk powder in blending butter from various sources was for the purpose of promoting uniformity of texture, flavour, and colour, and not in order that the article sold might be cheaper to produce than butter to which no milk powder had been added; and that butter was not the less butter after the addition of 1 per cent. of milk powder, in itself a wholesome article of food. Mr. Garrett, in giving his decision, appears to have held that it is essential to butter that it should be churned direct from milk and cream, and that the addition of milk powder containing no butter fat diminished the proportion of butter fat in the compound obtained in such a manner as to constitute adulteration. He did not accept the view that as long as the constituents of butter were present in due proportion in the article produced it was unadulterated butter. After the learned magistrate had imposed a fine of £5, a discussion took place upon the question of costs, which on the side of the Board of Agriculture, the prosecutors, were stated to amount to about £200, and 80 guineas were allowed as costs. It is to be regretted that heavy expenses of this sort should have to be incurred either by the Board of Agriculture or by manufacturers in order to settle in an individual case what constitutes an offence against an Act of Parliament, where it is a matter as to which doubt may reasonably arise. At present, at any rate, Mr. Garrett's decision is one which does not bind, and need not influence, other magistrates who may come to a different conclusion upon similar facts. The preparation of food for the market is a matter which every year produces fresh developments, and mechanical and chemical science is called in aid in increasing degree. The legitimacy of interference with pre-established standards is often doubtful, and cases may arise where it is to the public interest that such interference should be sanctioned or condemned decisively, and it is suggested that it should be possible on such occasions to obtain a regulation, framed by the Government department interested, laying down a definite standard with regard to the matter in doubt. Such a regulation would be based upon the advice of experts guided by expert evidence in making inquiry. It must be remembered that a magistrate is an expert in deciding questions of law; as to questions of scientific fact he is a layman, deciding as such between the conflicting expert opinions.

IONISATION IN RINGWORM OF THE SCALP.

IN the treatment of ringworm of the scalp ordinary topical applications fail because they do not penetrate sufficiently deeply into the hair follicles. The X rays have proved a much more efficient remedy, but are open to the objection that the alopecia which they produce is sometimes permanent. In the *Glasgow Medical Journal* for February Mr. J. R. Riddell estimated the frequency of this occurrence as 2 per cent. of the cases treated, and therefore recommends ionisation, which overcomes the difficulty of penetration. The following technique has given him good results. The head is shaved or the hair cropped short all over. An aqueous 1 per cent. solution of mercuric chloride or iodine (dissolved with the aid of potassium iodide) is rubbed well into the affected parts. Folds of lint (10 to 16 ply) are soaked in the solution and applied evenly to the surface. Over this the electrode is placed and secured by a few turns of bandage. The lint should overlap the diseased area. The electrode may be made of any convenient metal. Mr. Riddell most frequently uses copper gauze, as it is pliable and easily adapted to the surface. It should be large enough to cover the diseased area, and the contact between the head and the lint and between the lint and the electrode should be of equal pressure all over. If there be any irregularity, so that over a small area the contact between the lint and the scalp is much better than elsewhere, the current will concentrate on that point, possibly to such an extent that a slough will be produced. Short of this there may be so much irritation that the treatment has

to be suspended for a week or more. If a public supply of electricity is available this may be used; if not, a battery of 20 or 30 cells. One pole of the supply is attached to the electrode on the head; the other is connected to a water bath in which the child's arm or foot is immersed, or to a large well-moistened pad which may be bound to the arm or leg. The current must not be turned on or increased too quickly. If it is the child will feel pain or disagreeable sensations, such as giddiness, and become restive, so that a prolonged sitting is impossible and only a weak current will be tolerated. The child must be secured so that he cannot suddenly break the circuit, as by taking the limb out of the water. If he does, he will experience a shock and not again willingly submit to the treatment. The current is slowly turned on and gradually increased until the subject begins to feel slight warmth in the scalp. After a few minutes it will be found the current can be increased without discomfort. It should be increased as much as possible short of discomfort. When the area under treatment is large a child usually allows 15 to 20 milliampères to be used. Each sitting should be as prolonged as possible. Mr. Riddell aims at from 40 to 50 minutes, as one sitting of 45 minutes is better than three of 15 minutes. The more prolonged the sitting the deeper will the ions penetrate. The pads should be kept thoroughly wet; at the end of the sitting the current should be turned slowly off. The treatment should be repeated two or three times a week. It is well to have the head washed daily or every other day with an antiseptic, such as the sulphur, naphthol, and green-soap mixture commonly prescribed. If the treatment makes the scalp irritable or scaly a mild antiseptic oil may be used between the sittings, but it must be thoroughly removed before ionisation. Mr. Riddell has found the treatment certain, rapid, and safe. The average number of long sittings required for cure was nine.

THE ART OF MEDICAL PRESCRIBING.

A SHORT article written by "A Retired Hospital Physician" recently appeared in the *Westminster Gazette* under the title "On Decay in the Art of Medical Prescribing." The writer stated that his main design was to prove that if medical men are to write sound and logical prescriptions they must be properly trained to do so; and he further maintained that there was a gradual decay in the art of prescribing, which had been going on for years, and was the natural result of defective teaching. Doubtless in the days of the apprenticed pupil a sound knowledge of the compounding of drugs was obtained, for to quote the words of the article, "all around him were the weapons of his future warfare; he saw, he handled, he weighed." There is much truth in the points that this writer has made, for too much stress is laid to-day on the diagnosis of medical cases and too little on the details of the treatment, especially in regard to the employment of drugs. There is a matter which he did not happen to mention, and it is one which hospital physicians would do well to caution students concerning. The free use which is made of a hospital pharmacopœia in which the dosage and combination of drugs are obscured under the title of "mistura" or "haustus" is dangerous. The student becomes so accustomed to the sounds of the words "mistura gentianæ alkalina" or "haustus albus" that he forgets the actual constituents of those preparations, and when asked to dictate similar prescriptions is frequently at a loss. We believe also, although we are quite prepared to have the opinion challenged, that the constant compounding of medicines in general practice according to the total quantities of drugs in a 6- or 8-ounce bottle tends to less accuracy than when the details of a single dose are set down, so that the exact quantity of each constituent taken by the patient at each dose is borne in mind. The "Retired Hospital Physician" also referred to the manufacture and sale of compound medicines, which certainly save "the busy practitioner from the laborious pain of thinking for himself," but it must be allowed that many of them are good preparations made up in a convenient and palatable form. In a very interesting article, the writer has omitted to state that the medical student has to pass fairly stringent examinations in pharmacy and materia medica, and this was not the case in every medical curriculum in mid-Victorian days.

A SEVENTEENTH CENTURY PIONEER OF ANTISEPTIC SURGERY.

THE Honourable W. R. Riddell, Justice in the King's Bench Division, High Court of Justice for Ontario, Canada, in the *New York Medical Journal* of March 2nd, under the title of "A Seventeenth Century Surgeon and His Fee," gives us the charge to the jury delivered at the Guildhall, London, on May 4th, 1687 (3 Jac. II.), by Sir Thomas Street, Knt., Justice of the Common Bench, in the case of Randall *v.* Sir Thomas Powis, Knt., a document in many respects of surpassing interest to the medical profession. The charge shows without doubt that antiseptic surgery, like so many other of our modern discoveries, was anticipated in the seventeenth century, not only in matters of practice, but also as regards the underlying hypothesis—now a demonstrable fact, thanks to Lister, whose merit is in no way encroached on by this anticipation. For, as we have so often said, it is he who compels the world's attention to, and acceptance of, a truth and enforces or renders possible its application, who confers on mankind that benefit which is the measure of merit. Sir Thomas Street's charge sets forth that the defendant, having been wounded in the arm, and being "suddenly dejected into extreme debility and danger ..... employed a surgeon who treated him in a manner recommended by his art and mystery with topical applications." But "the wound did not improve, and the defendant, despairing to find ease or benefit by the fruitless continuance of this chirurgery, and fearing the speedy invasion of a gangraene, consulted the plaintiff." Then follows this statement, remarkable indeed in the year 1687: "This new surgeon enjoined the immediate removal of all emplasters and other topical applications, and he washed the wound carefully from time to time with fair clean water, covered it with a clean soft linen cloth, and cleansed it once a day from pus and other impurities." We are further told that "the wound hath gotten well and the surgeon sues the Knight for his reward." After a discussion of the professional ethics which, while forbidding a physician to sue for his honoraria, permit surgeons, who "are of an inferior degree amongst the professors of the healing art," to "demand their fees as of right," and a learned disquisition on the treatment of wounds according to the orthodox surgery of the day, the remarkable prescience of the surgeon, Randall, is set forth as follows: "Now the plaintiff did naught save wash and tend the wound; he used no sympathetic powder or sympathetic unguent and he giveth his reason. ..... He saith that the pus which all others admire and desire as showing that Nature hath armed herself for the fight is not to be desired, but that it is itself an impurity which should be avoided—that it hindreth the cure and contendeth against the *vis medicatrix naturæ*. He hath even in his mind some crotchet that pus is engendered by some small animal or plant, some bug or gnat or beetle or fungus belike, though he saith openly that he cannot prove the existence of such creatures. This however he contendeth is

because his glasses do not magnify sufficiently to enable him to see them. And he meaneth not the glasses or spectacles for weak or aged eyes; but the microscope which hath a rare and admirable faculty of making small things appear large. ..... He saith forsooth that the true treatment is to keep all extraneous matter away from the wound and even the air which he imagineth to be full of his bugs and gnats and beetles." Moreover, Randall's views, even then, were apparently not unique, for the charge adds: "Yet he sayeth that his method of cure is well known to the profession, though that is denied by other surgeons." We regret to say that this pioneer confessor of antiseptic surgery lost his case. The summing-up was dead against him: "That is the question ye are to try, and if ye find that his mode of cure is acknowledged in his profession, ye will give him your verdict; and if otherwise, not. And it is naught that the Knight hath been cured. It may be that the powerful medicaments applied by his first attendant but succeeded in making their power felt after the plaintiff was consulted. Ye may indeed think that if the plaintiff is right in his contention that it was but the unassisted *vis medicatrix naturæ* which effected the cure, all the credit for the cure should be given to Dame Nature herself and the plaintiff deserveth none—having no credit, neither should he be given cash." Niemeyer and nihilistic therapy would evidently have had short shrift in 1687!

THE REPORTING OF VENEREAL DISEASES IN NEW YORK.

Mr. Ernest J. Lederle, Ph.D., Commissioner of Health of the City of New York, informs us that the Board of Health of that city has recently taken a bold, and it must be admitted a logical, step forward in the matter of bringing venereal diseases under administrative control. On Feb. 20th the board adopted, and the advisory board of the department, comprising a number of the most eminent medical men of the city, approved, resolutions "requiring" superintendents or other officers in charge of public institutions, such as hospitals, dispensaries, clinics, charitable and correctional institutions, including all institutions supported wholly or partly by voluntary contributions, to report promptly to the Department of Health the name, sex, age, address, nationality, race, and marital state of every patient under observation suffering from any stage of syphilis, chancroid, or gonorrhœal infection; and "requesting" private practitioners to furnish similar information (but excluding the name and address) with regard to their private patients so suffering. All information so obtained is to be regarded as confidential, not to be accessible to the public, and not a matter of public record. In return for the service the board will undertake on request to make without charge for medical men so reporting the Wassermann and Noguchi tests for the diagnosis of syphilis and to examine for spirochætæ specimens submitted to them. The possession by the sanitary authorities of information concerning all communicable diseases is an indispensable requisite to their administrative control and ultimate extermination. Venereal diseases are more disastrous in their consequences to the race, and are more dangerous to the community at large in proportion to their prevalence among the ignorant and those whose financial position prevents their taking adequate means of cure. Where the economic status is such that the sufferers depend for the subsistence of themselves and their dependents entirely on continued personal toil, they must in numberless ways assist in the spread of infection. The obvious conclusion is that the venereal diseases, more than any other kind of disease, call for notification and control in the interests of the community and the race. When, however, it is proposed to extend the sanitary regulations so as to include compulsory notification of this class of disease, the gravest difficulties present themselves. These arise almost entirely from the stigma of moral turpitude with which these diseases have long been associated in the public mind, thus entailing serious social and economic consequences on any breach of the confidential relations that properly exist between medical attendant and patient. On the other hand, it must be remembered that the injury caused by one case due to a breach of morality spreads in ever-widening circles involving innocent victims in every direction, who in their turn, and entirely without any fault of their own, may become unwitting and unwilling foci. Between those, then, who regard medicine almost exclusively from the point of view of a social science, and those who regard it as almost entirely a personal and confidential relation between doctor and patient, these diseases form, as it were, the last ditch, where compromise becomes no longer possible, and the battle must be fought out to the end. The difficulties of the problem are indubitable, and the working of the New York experiment will be watched with keen and sympathetic interest by public health authorities all the world over. It is greatly to be desired that some term should be substituted for the present ones, to which the idea of moral obliquity attaches; for those who are innocently suffering the consequences entailed by no moral lapse of their own may outnumber those in whom the disease is the result of their own personal misconduct. The stigma is the first block in the way of willing acceptance of administrative control; but the stigma, though now attaching to all, belongs properly to only some; therefore its removal would seem to be the first essential step towards obtaining that ready acquiescence in administrative control which alone can render it adequately effective in a civilised and free community.

ARE SOME OF THE UNCLASSIFIED FEVERS OF TROPICAL REGIONS RELATED TO YELLOW FEVER?

IN the Mexican province of Yucatan cases of unclassified fevers are sometimes observed by the local medical practitioners, and yellow fever is also not unfrequently present in the same region. Dr. Seidelin, whose name is well known as an investigator of this subject, has sought in Yucatan to discover in the blood of patients suffering from fever of undetermined origin the presence of parasites which might prove to be the cause of such illness. In an article entitled "Notes on Some Blood-parasites in Man and Mammals," which he contributes to the last published number of the *Annals of Tropical Medicine and Parasitology* (Vol. V., No. 4), he mentions that he had found in the blood of a man suffering from unclassified fever at Merida in 1910 certain bodies which he regards as parasites. They were fairly numerous on the fourth day of the fever, but scarce on the eighth day, and entirely absent on the ninth and tenth. They were not unlike the yellow fever bodies, which Dr. Seidelin has named paraplasma flavigenum, though differing from them in certain respects. The symptoms observed in the patient were not precisely those described in typical cases of yellow fever, though they were sufficient to arouse suspicion that the illness might be of that nature. It is known that the clinical characters of yellow fever may vary considerably in certain circumstances, and the clinical picture of the disease in one place may not always be the same in another locality. Dr. Seidelin suggests that yellow fever belongs to a group of fevers produced by blood-inhabiting parasites which may differ, though more or less intimately related to each other. Such differences might perhaps account for the variations in the clinical pictures of yellow fever in one and another

region; and this might also serve as an explanation of some at least of the puzzling points which have arisen in the epidemiology of the disease. Should this suggestion by Dr. Seidelin prove correct the illness of the patient mentioned above might be regarded as belonging to the yellow fever group, and its parasite as another species of the same genus as the yellow fever parasite—the paraplasma flavigenum. To this new species Dr. Seidelin proposes to give the name of paraplasma subflavigenum, and he has deposited a type specimen of it in the collection of the Liverpool School of Tropical Medicine. He had hoped to have met with other cases of the same kind, but he now publishes a summary of this single case, as it presents some points of special interest when considered in connexion with his previous observations respecting the etiology of yellow fever, to which it may be remembered we drew attention in THE LANCET of Jan. 20th. The question whether yellow fever is transmitted to man by one intermediary host alone, the stegomyia fasciata, and whether other members of the yellow fever group may have the same or other convectors, is not dealt with by Dr. Seidelin in his present paper. He has, however, already raised the point that yellow fever may have other transmitting agents than that generally recognised. It has been quite recently suggested also in another quarter that the passage of a parasite through the body of a different insect host than that in which its cycle of development commonly takes place may have the effect of altering or modifying the biological and pathological characters of the parasite and thus give rise to variation in the usual clinical manifestations of the resulting infection in man. To this question, no doubt, Dr. Seidelin and other competent investigators may direct their attention, and in time succeed in furnishing us with a satisfactory conclusion.

THE FEEBLE-MINDED INEBRIATE.

IN a lecture which he delivered recently at University College, Mr. David Heron, of the Francis Galton Eugenics Laboratory, discussed the results obtained by the biometric analysis of the cases dealt with in certified inebriate reformatories since the passing of the Inebriates Act of 1898. It was pointed out that mental defect of a more or less pronounced degree was present in a large majority of these so-called inebriates, that this defect was apparent usually when the individuals were admitted to the reformatories, and that there was only a very slight increase in its amount with age or duration of alcoholism. On the other hand, a very close relationship could be traced between mental defect and the level of education, a character which is largely pre-alcoholic. The inference to be drawn from these facts is obviously that in the cases discussed the mental defect to a very large extent preceded the inebriety. As regards the results of the reformatory treatment, the lecturer referred to the after-history of over 1800 persons committed under the Act, and showed that even within the very brief period that had elapsed after discharge nearly 80 per cent. had returned to their inebriate habits. The Inebriates Act up to the present has been applied mainly to women, and it is the most interesting and significant fact brought out in Mr. Heron's investigation that these women, two-thirds of whom are mentally defective, had not smaller but larger families than sound stocks. Thus it was found that 865 female inebriates had in all 2589 children, while the average completed family was nearly 8. As there is no reason to suppose that these mentally defective women differ in their characteristics from the general run of the feeble-minded, their very high fertility indicates the grave and urgent danger to the community which is involved in the unrestricted procreation of the mentally unfit. This is the most important lesson to be learned from Mr. Heron's very interesting lecture, and the lesson might, perhaps, have been conveyed with more force and clearness if the lecturer had presented his facts as bearing on the problem of feeble-mindedness to which they are really relevant, and had not given to his address the somewhat misleading title, "A Study of Extreme Alcoholism." It introduces needless confusion when a term, which is ordinarily used to mean prolonged and intense poisoning with alcohol, is employed to signify the fact of frequent sojourn in an inebriate reformatory. It is tolerably obvious that the two conditions, so far from being equivalent, are more likely to be mutually exclusive.

THE EIGHTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY.

THE International Congress of Applied Chemistry meets this year in Washington, on Sept. 4th, and in New York, from Sept. 6th to 13th. The work of organisation is proceeding very rapidly, and the preliminary announcements which have reached us indicate a wealth of papers to be read possessing theoretical and practical importance in accordance with the object of the congress, which is the advancement of all applications of chemical science to practical life. The topics to be discussed cover a very wide field. There are over 20 sections, including subsections dealing with analytical chemistry; inorganic chemistry; metallurgy and mining explosives; silicate industries; organic chemistry; coal-tar colours and dye-stuffs; industry and chemistry of sugar; indiarubber and other plastics; fuels and asphaltes; fats, fatty oils, and soaps; paints, drying oils, and varnishes; starch, cellulose, and paper; fermentation; agricultural chemistry; hygiene; pharmaceutical chemistry; bromatology; physiological chemistry and pharmacology; photochemistry; electro-chemistry; physical chemistry; law and legislation affecting chemical industry; and political economy and conservation of natural resources. The programme is eloquent as to the rôle which chemistry is assuming in human affairs, and a position has been reached which shows that efficient training in technological science is rapidly becoming of the utmost importance.

DERMATO-MYOSITIS.

AN interesting case of this rare condition was recently reported by Dr. F. E. Batten[1] at the Neurological Section of the Royal Society of Medicine, the clinical details being supplemented by a full record of the pathological findings at the necropsy and by microscopical examination. The patient was a girl, aged 9 years, who had previously been an inmate of the Metropolitan Hospital under the care of Dr. W. Langdon Brown. When first seen she exhibited erythema of the face, scalp, and extensor surfaces of the limbs, the skin of these regions being swollen, hard, and inelastic, and scaling subsequently ensued. She gradually became stiff and unable to walk, exacerbations occurring in which the muscles were acutely swollen and the skin over them red. As the disease progressed the child emaciated considerably and the muscles generally diminished in size. Movement of nearly all the joints was limited, but the articulations themselves were not involved. Fluid withdrawn from a swollen area of muscle was sterile and showed no special cellular characteristics. There was no eosinophilia, and von Pirquet's and Wassermann's reactions were negative. The patient's temperature never rose above 100° F. except when infection of the urinary tract was present. This finally proved fatal, the child dying after an illness of 15 months. At the necropsy the skin appeared normal to

[1] F. E. Batten: Case of Dermato-myositis in a Child, Proceedings of the Royal Society of Medicine, vol. v., No. 4, Neurological Section, 1912, p. 103.

the naked eye, but it was unusually firm. The liver exhibited a peculiar condition, being studded with small circular, yellowish areas, which could be shelled out from the surrounding tissue. The largest were about ¼ in. in diameter. Microscopically these were composed of fat. The skin in sections showed atrophy, the epidermis being reduced to a few layers and the papillæ absent in places. The subcutaneous fat was largely replaced by fibrous tissue, and the vessels of the corium were partially occluded, owing to fibrosis of their walls and hyaline change. The muscles showed atrophy of their fibres, especially in the peripheral bundles, and here and there lymphocytic infiltration was visible round the vessels. The nervous system was normal. The course of the affection and the pathological changes alike point to a chronic infective condition, the toxins acting on the skin and muscles principally. In spite of careful examination, however, no parasite was discovered in this instance. Dr. Batten suggests that inoculation of animals may advantageously be carried out in future cases of this disease and may prove more successful than simple culture experiments.

THE SEVENTH INTERNATIONAL CONGRESS ON TUBERCULOSIS.

AT 10 o'clock on Sunday morning, April 14th, there will be a solemn and imposing ceremony at the Capitol in Rome. Their Majesties the King and Queen of Italy will declare open the Seventh International Congress on Tuberculosis. On the previous evening there will be a reception of the members of the congress. Previously, however, to the assembly of the great Congress the International Association will hold a conference from April 11th to the 13th, the sittings taking place on the same premises as the forthcoming congress—namely, at the historic Castle of St. Angelo. Probably the International Committee of the Association of the Medical Press will meet here also, for the members are convoked for April 13th. The sittings of the sections of the actual Congress will commence at nine in the morning of Monday, April 15th. The sections will then be organised and formally opened; but during the four subsequent days will meet in the afternoon, leaving the mornings free. This is a wise arrangement, for it is quite certain that as there is so much to see at Rome the attendance will be very poor at some of the sections if the working hours are made too long. On Saturday, the 20th, the closing ceremony will be held also in the afternoon. The sight-seeing, for which time has been thus provided, will be the more assiduously pursued as the Minister of Public Instruction has graciously conceded to the members of the Congress the right of free entry to all the national monuments of the entire kingdom. This free entry is also accorded to the present International Exhibition of Hygiene, to the Retrospective Exhibition, the Archæological Exhibition, and the Victor Emanuel II. Monument. A committee formed by prominent members of Roman society is organising the reception of the members of the Congress to ensure their comfort and help them to see all they desire. In the Castel Sant' Angelo, where the Congress meets, there will be a post- and telegraph-office, and members can have their correspondence addressed by post to "Congresso Tuberculosi, Rome," or by telegraph to "Tuberculosis, Rome." At the bureau of the Congress the four official languages will be spoken. Numerous excursions to neighbouring places of interest are being organised, such as Tivoli, Subiaco, Ostia, Palestrina, Assisi, and Loretto. On arriving in Rome the members will find a bureau at the railway station to deal with lodgings. The hotels have been divided into five categories, the prices ranging from 15s. to 3s. 6d. daily. The Congress promises well, and to judge by the papers presented for reading in the three sections there should be some interesting discussions.

THE Church Missionary Society has lost within a few days of each other, from septicæmia, two members of its medical mission staff upon the North-West Frontier of India—Dr. Theodore Leighton Pennell, who received for his distinguished services the Kaisar-i-Hind gold medal in 1910, and Dr. William Henry Barnett.

Sir John William Moore, M.D. Dub., F.R.C.P. Irel., has been appointed one of the Honorary Physicians in Ordinary to His Majesty in Ireland, in the room of the late Sir Francis Richard Cruise.

TELEGRAPHISTS' CRAMP.

AN EXTRACT FROM THE REPORT OF THE DEPARTMENTAL COMMITTEE, GENERAL POST OFFICE, ON THE SUBJECT WITH ADDITIONAL MATTER [1]

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AND
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SECOND MEDICAL OFFICER, GENERAL POST OFFICE.
(*The Medical Subcommittee.*)

PART I.

THE terms of reference to the Departmental Committee were: "To inquire into the prevalence and causes of the disease known as telegraphists' cramp, and to report what means may be adopted for its prevention."

Historical.

The earliest description of telegraphists' cramp as a specific disease was by M. Onimus [2] in Belgium in 1875. He gave a clear account of the symptoms and associated the complaint with the use of the Morse key. He says:—

> Cette affection ne serait pas très rare parmi les employés au télégraphe, surtout pour ceux qui se servent constamment du télégraphe Morse; ils la designent entre eux par l'expression de mal télégraphique.

M. Onimus recommended alternate duties upon the Hughes and Morse instruments as a preventive measure.

In August, 1882, Mr. Edmund Robinson,[3] surgeon to the Post Office at Leeds, read a paper before the British Medical Association upon four cases of telegraphists' cramp. The cases are clearly described, and it is noted that all were workers on the Morse instrument. Mr. Robinson points out the similarity of this complaint to the previously well-recognised cases of writers' cramp. In the same year (1882) a report was made on the subject of telegraphists' cramp by the chief medical officer of the General Post Office. Two years later Dr. Fulton,[4] who had been a telegraphist in the Edinburgh Post Office, described [5] the disease. Dr. Fulton appears to have had much experience of telegraphists' cramp, which, he stated, was probably more common than was generally supposed.

Isolated cases have been reported by observers in several countries, but in 1903 an extensive monograph on the "occupation neurosis of telegraphists" was published by Dr. E Cronbach.[6] He describes 17 cases which he had observed in Dr. Mendel's hospital in Berlin, and points out that only three of these were Morse workers, while 14 worked on the Hughes instrument. He shows clearly that there is a form of telegraphists' cramp due to continuous working on the Hughes instrument, and argues strongly that

[1] Permission for the publication of this article has been given by the Secretary, General Post Office.
[2] Gazette Médicale de Paris, 1875, p. 175.
[3] Brit. Med. Jour., 1882, Nov. 4th.
[4] T. W. Fulton, M.D., F.R.S.E., Scientific Superintendent of H.M. Fishery Board, Scotland, who has kindly given us permission to quote from his article.
[5] Edinburgh Clinical and Pathological Journal, 1884.
[6] Archiv für Psychiatrie, 1903, s. 243.

substitution of the Hughes instrument for the Morse would have no effect in preventing the occurrence of cramp among telegraphists.

Definition of Telegraphists' Cramp.

Craft neurosis, occupation spasm, trade palsy, are the various names given to indicate a group of functional disorders which are characterised by a difficulty in the performance of the specific coördinated movements of certain occupations. The occupations in which the affection occurs are, for the most part, complicated acts brought to perfection by education and practice. The form of occupation spasm most commonly met with is writers' cramp, but many other forms exist.

Any instrument which calls for repeated fine muscular movements of the same kind may involve a relative "occupation spasm" or "craft neurosis." We have associated the term telegraphists' cramp with the disease which brings about a difficulty in making the specific coördinated movements needed for a proper manipulation of the particular instrument known as the Morse key, but the manipulation of the Baudot or Hughes keyboards[7] may similarly bring about their relative cramp (analogous to pianists' cramp); and all these three cramps are on parallel lines with writers' cramp. The various members of the group can be distinguished from one another by the fact that the pain and spasm occur only during use of the particular instrument on which the disabled worker has been employed; and disability in the use of one instrument does not necessarily imply disability in the use of any other instrument. A few exceptions to this general rule have been found in advanced or long-standing cases. (See Case 3, to be recorded later.)

In its medical aspect, before any cramp or spasm is apparent, there may be a stage characterised by subjective symptoms only, when the operator feels pain or discomfort in the operating hand or arm. The pain is referred to various parts of the limb, but it is constant in its time of appearance—that is, it occurs when the operator begins to key or soon afterwards, before any muscular fatigue is possible; and this is the only circumstance which enables this pain to be distinguished from pain caused by fatigue. The operator's electrical reactions are normal, and his muscular and nervous condition, so far as can be ascertained, is normal in all respects; and his work does not suffer. There is no visible cramp or spasm; visible cramp or spasm may or may not develop; and although this condition cannot therefore properly be called telegraphists' cramp, we are of opinion that it marks an early stage of the disease.

The characteristic feature of the disease—implied by the term "cramp" itself—is an "involuntary violent and painful contraction of the muscles"[8]; and throughout the telegraph service such visible spasm is regarded as the mark of the disease; and telegraphists' cramp may be defined as a disease of the central nervous system characterised by visible spasm of hand and (or) arm during the manipulation of a telegraph instrument, and by impairment of the power of making the specific coördinated movements needed for such manipulation.

Methods of Investigation.

1. An examination was made of certain well-marked cases of telegraphists' cramp who appeared before the committee for the purpose of demonstrating the disorder. In all, 17 cases were examined, all of whom had been reported as cases of telegraphists' cramp.

In the majority of cases the symptoms came on without any definite exciting cause; but in several cases the onset was attributed to excess of Morse sending work—e.g., on press wires or specially heavy circuits. The length of service in those cases considered by us to be true telegraphists' cramp was long—28, 25, 22, 19, 19, 15, 12, 10, 7, 6 years—an average of 16 years.

A very important point which was elicited by our inquiry was the ability of the subjects of Morse cramp to perform other actions besides Morse manipulation and to use other instruments than the Morse. This, we found, did not depend on the total length of service, for operators who had developed cramp after many years' service on the Morse were found to be able to use the Hughes instrument; but in those cases where pain and stiffness and spasm had occurred and the operators had continued work for long periods while suffering from cramp, movements of the hands other than those used in Morse sending became affected, and the Hughes instrument could not be used.

Difficulty only in Sending on Morse Instrument.

Period of operating ...	22 years	... 28 years	... 12 years	... 10 years
Period of cramp	2 ,,	... 1 year	... 1 year	... 1 year

Difficulty in Morse Sending, and Other Actions of the Hands Affected so that Other Instruments could not be Used.

Period of operating ...	19 years	... 25 years	... 19 years	... 15 years
Period of cramp	10 ,,	... 15 ,,	... 6 ,,	... 9 ,,

This shows that where the operator brought his case to notice early he could be usefully employed at the Hughes, but when, in spite of disability, he persisted in doing the work, the spasm extended to other actions beyond the special one of Morse sending.

A most careful examination was made of six of these cases. The nervous system was completely investigated and was found to be normal. No muscular wasting and no alteration in the electrical reactions were found. No alteration in sensibility of the skin of the hands or of the deeper structures was discovered. Such a result points to the disorder being of a central origin and not to any failure in the muscles or in the sensori-motor peripheral mechanism. A full account of six cases will be given in Part III.

2. By order of the committee, a circular with a set of questions to which answers were invited was sent to each of the 8153 telegraphists employed either in the Central Telegraph Office or on the telegraph side of all provincial offices which have a separate telegraph staff. Answers were received from 7317 telegraphists. 836 forms were not returned, or returned without reply.

148 telegraphists in one division of the Central Telegraph Office, a division which represented a mean between those divisions where Morse working is predominant and those where little Morse working is done—both those who complained of difficulty in manipulation as well as those who did not, in fact all who were available—were then personally examined by ourselves. Their physical well-being was inquired into, the state of their arm muscles was examined, and their method of manipulation at the key was watched. A sentence was keyed, printed in Morse signals on slip, and examined. We were assisted in this part of the examination by officers with expert knowledge.

93 telegraphists complained of some difficulty in keying. 13 of these were found to be affected with the malady. Of these 13 cases, 7 showed definite spasm in the right hand, but in the remaining 6 the disease was in the early or subjective stage. In these latter cases, however, the diagnosis was made after full consideration of the statements of the operators and their physical condition. The average length of service of these 13 operators at the Morse key when disability first appeared is 15·6 years. It is to be particularly noted that of these 13 officers no one of them was disabled from performing his allotted duty. Moreover, some of them, though conscious of difficulty, yet had not thought that they had cramp. In all these cases the cramp had affected the right hand only; 5 of them worked quite comfortably with the left and 5 used the left hand occasionally to relieve the right, but all were able to perform their work to the satisfaction of the supervising officers. In none of these cases were there any local abnormalities, the muscles were healthy and well developed, and there was no loss of power or sensation in the arm or hand.

The written replies showed that over one-third of the staff professed to feel more or less difficulty in manipulation, but it is necessary to emphasise the fact that in most cases the difficulty was slight, of a temporary character, and attributable to muscular fatigue alone.

The whole of the cases where the replies received and personal examination made indicated that the difficulty was apparently due to cramp (417 in all) were those of operators on the Morse key. In the cable room of the Central Telegraph Office replies were received from 105 telegraphists, and though some complaints of fatigue were made, we considered that in the cable room, where the Hughes and Baudot instruments are mainly used, true cramp was absent. Hughes and Baudot instruments are little used except in the cable room,

[7] Other telegraph instruments described on p. 69 of the report.
[8] Sir J. A. H. Murray's New English Dictionary.

whilst the Baudot instrument has only been introduced within the last few years.

The above result seems to show that in England the malady is chiefly associated with prolonged sending with the Morse key. This is no doubt due, in some measure, to the fact that the Morse key is the prevailing instrument. Partly, as will be shown, it is due to the fact that its use necessitates monotonous and unvarying movements. In Germany, where the use of the Hughes instrument is more prevalent, Cronbach has described several cases of cramp in workers on the Hughes instrument.

The following table shows the length of service in years when difficulty was first experienced at the Morse key. Of the 417 cases, only 243 answered the question dealing with this point; it is possible, had replies been received from all, that the incidence of the malady as regards service would have been different, but the available statistics show the following results:—

Years' service.	Male.	Female.	Years' service.	Male.	Female.
1–5	22	20	16–20	51	5
6–10	39	23	21–25	23	1
11–15	42	8	26–30	5	—

It will be noticed that in the case of the female staff the malady is more apparent at an earlier period of service, and as the result of our investigations we find that the affection may seize upon the young telegraphist or on one who has had comparatively little manipulation to perform.

Ambidexterity.—Thirty-nine officers were ambidextrous before developing cramp, 259 acquired ambidexterity after developing cramp, 117 were not ambidextrous, and 2 did not reply.

Disability arising from the use of the pen.—In our examination of the 7317 replies we did not find any instance of writers' cramp, though we noticed several cases of fatigue and consequent interference with easy penmanship.

(To be continued.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

County Borough of West Bromwich.—Mr. R. Woolsey Stocks's report for 1911 calls attention to the problem of "dull children," who approach 10 per cent. of the children examined and who are at least two standards below the average. Mr. Stocks is convinced that the large proportion of these children could be taught industrial subjects with comparative ease, especially as the teaching necessitates a much more individual method of instruction than is obtainable in the ordinary class work. In contradistinction to the decrease noticed in many districts the number of children harbouring body lice was found to be distinctly above that of previous years. The report also calls attention to a very serious defect—the all too frequent absence of any form of underclothing in girls. The medical officer attends on Saturday mornings at the education office to receive reports from the attendance officers and to examine any children specially reported to him by the committee. During the year 148 cases were examined; of these, 15 children were found to be able to attend school, and an order was made to this effect. As no special facilities for the teaching of mentally deficient children exist, only four of the seven discovered were excluded. The report calls attention to the need for provision of a dental clinic in view of the large number of cases needing treatment and the lack of means for this treatment. Only two cases of ringworm were noted out of a total of over 1000 children examined.

Counties of Fife and Kinross.—The very full statistics given in Dr. J. R. Currie's report for 1910–11 make it specially interesting. Among the children examined there were 253 cases of otorrhœa and 382 of abnormalities of the heart and circulation, but only 27 examples of phthisis, this representing a percentage incidence of 0·1 on the total children examined. It is suggested that the disease may be somewhat more prevalent among children than the literal interpretation would indicate, not because cases are missed in the course of inspection, but because phthisical children rapidly become too ill to appear in school at all. Despite these facts, however, it is undoubtedly true that the percentage incidence of phthisis among school children is much lower than is often imagined. Of tuberculosis other than phthisis, 50 cases were noted, 31 being gland cases, 6 examples of hip disease, 2 of spinal caries, and 5 of other tuberculosis. In this connexion the value of medical inspection comes out strikingly in the following extract from Dr. A. F. McBean's report on the Fourth Inspectoral Area:—

> One case was examined last year on request of the parent. She had been noticed to limp slightly. I made full examination and measurements, the mother, who was present, wishing it. I made diagnosis of hip-joint disease and advised the mother to get their own doctor to attend to the case. This was done and the child put under treatment. I saw her at another school this year, after 14 months, and was glad to see her looking very much stronger and without trace of a limp. Her mother stated the girl was in excellent health now.

One case of tongue-tie is recorded, and in view of the opinion of some authorities who regard this condition as mythical it would be interesting to have details which are not given. Pigeon-chest was found in 18 children, curvature of the spine in 8, and web-fingers in 2; there were only 13 cases of ringworm, but 237 of anæmia. Of the children examined, 75·3 per cent. were well nourished, 23·3 per cent. ill-nourished, and 1·4 per cent. emaciated. The percentage relations for boys and girls were found to be almost identical. The total percentage for defective nutrition was given as 24·7 per cent. The causes of malnutrition are held to be injudicious rather than inadequate feeding, depending largely on the obsolescence of the art of cookery. Very encouraging results are recorded with regard to the improvement in the cleanliness of children's heads, one example in the heart of the mining district being recorded where there was not a single verminous head among 400 children. It would undoubtedly be easier for the spread of these vermin to be guarded against if the cloak-room accommodation in schools were more ample, so that the children's clothing, and particularly hats and caps, could be kept separately. The treatment provided after medical inspection does not appear to have been very satisfactory, and intimations calling on parents to deal with carious teeth were only sent out in special circumstances, because it was recognised that proper dental treatment was in most cases unattainable. Only a little more than half the children found defective appear to have obtained any kind of treatment. The impediments to treatment are considered at more length under the headings of indifference, ignorance, and cost. It is unfortunate, however, that statistics are not given with regard to the number of cases to which these different factors apply. Some interesting figures are given with regard to employment after school-age, and it is pointed out that it is particularly necessary for children who are destined for factory work that they should be medically inspected and their defects pointed out to their parents. Of 6500 certificates issued by certifying factory surgeons in 1910 to which qualifying conditions were attached, 1160 related to defective vision, 884 to nits and vermin, and 805 to carious teeth, some sufferers being forbidden to work in company with other persons, the majority being excluded entirely unless their defects were cured. The above categories are particularly those which figure conspicuously in school medical officers' returns and relate to ailments which can be remedied during school life. On the question of the cause of failure in the treatment of eye and teeth defects, it is said that the fee of the expert is too large to be paid by the parents of children attending elementary schools, and the report urges strongly the establishment of school clinics at which children might receive treatment for such conditions as do not come within the scope of ordinary medical practice. But in Scotland at the present time no power exists to establish school clinics, the field being therefore open for private enterprise or for legislation. The number of parents present at examinations seems to have been rather low: in one inspectoral area only 13 per cent. of the parents attended; in others 11 per cent. and 6·5 per cent. It is noted that many children were overburdened with clothing.

School Board of Glasgow.—Dr. Ernest T. Roberts's report is the first annual report and covers the year ending June 30th, 1910. The staff consists of 1 full-time officer, 1 half-time officer, and 20 quarter-time medical officers. There are in addition 7 school nurses. The school service is thus very similar to that in existence in London. During

the year 9511 notifications of defects were made to parents, and where a re-examination was made it was found that 23·7 per cent. were cured and 30·2 per cent. improved, the remainder being still under observation. An examination clinic has been established since October, 1909, where special cases are dealt with on Saturday mornings and other times when necessary. The work has greatly increased, and at the present time Tuesday afternoon and Thursday and Saturday mornings are set apart for this purpose. Children who are unable to attend at the office are also visited at their own homes and others seen at the schools. Mentally deficient children who are badly nourished or the subjects of rickets have been given emulsion of cod-liver oil with hypophosphites, and the medical officer suggests that this may tend to expedite the return to the schools of the children whose defect is not permanent. Three schools are now fitted with shower baths, and the medical officer urges that as soon as possible these should be installed in all schools situated in the poorer parts of the city. Baths were at the date of the report in process of installation in two other schools. A very interesting table is given showing the percentage of children from 1 to 5 years attacked by and surviving measles, whooping-cough, chicken-pox, and diphtheria. There is a useful section of the report on the medical inspection of deficient children by Dr. Robert Bruce. There are in Glasgow 11 centres with special facilities for receiving, feeding, and educating these children, which are placed throughout the city so as to meet the requirements of the populous districts. The dietary table of dinners is given, and might well form the basis for school menus for necessitous children who are not physically defective. Cod-liver oil and hypophosphites, already mentioned, are given after the dinner. Mr. John Carswell reports on the mentally deficient children of whom there were 825 in 1910. The method in vogue in Glasgow is to group these cases in special probationary classes for one year before they are definitely classed as mentally deficient. The marked preponderance of male children over female has been noted, but this does not appear in the case of Roman Catholics; no explanation of this fact is given. It is pointed out that the mental defects which render the children incapable of receiving proper benefit from instruction in the elementary schools may be limited to letter or word blindness, or to delayed development of the speech centre in the brain, or to a condition of mental bewilderment caused by bad physical conditions, none of which need entail permanent deficiency. Mr. Carswell states that his experience leads him to believe that there are two distinct periods when mental deficiency shows itself—first, between the ages of 5 and 7; and second, when the third or fourth standard is reached. It is from among boys and girls who have got on tolerably well up to the third or fourth standard, but who get no further, that criminal youths and other troublesome persons are largely recruited. The mentally deficient adult, whose mentally defective powers show in early school life, is usually a docile and easily managed person, but the boy whose mental incapacity does not emerge till the affective life becomes active enters upon adult life with a poor equipment of education and uncontrolled impulse and readily becomes the prey to the temptations of the street. It is suggested that children who cease to make progress after reaching the third or fourth standard, even though the failure may be attributed to some cause, such as absence by truancy or otherwise, should be admitted for special examination. Glasgow is fortunate in having special classes for the semi-deaf and the semi-mute, and it is suggested that good use might be made of the years between two and six in teaching children to speak either by admission to special schools for very young deaf children or by visits of an articulation teacher to the homes once a week or once a fortnight to explain to the mother the needs of the child and to give half an hour's lesson in the presence of the mother. The report for 1911 has now been issued.

County of Berkshire.—The report of the school medical officer for 1911 presents statistics of inspections extending over three years and dealing with between 17,000 and 18,000 children. It was found that in the country districts where the schools are very small the strict adherence to the requirements of the Board of Education necessitated considerable waste of the medical officer's time, for if the children who came within the age groups only were examined, there were not enough to occupy the time, while the schools were too far apart for more than one to be done in a day. The detail of inspections has therefore varied in accordance with whether the school population was over or under 75. The parents of 75·1 per cent. of children inspected in 1911 attended the examinations, as compared with 77·5 in the two previous years and 78·9 in 1908. The figures for cleanliness are practically the same as those of the previous years, but there has been a progressive improvement since medical inspection, as may be noted by the proportion in 1908. In this latter year 22 per cent. had pediculi or nits in the hair; in 1909, 16·5 per cent; in 1910, 14·26 per cent.; and in 1911, 13·16 per cent. In 1908 over 9 per cent. are noted as having defective nutrition; 7·2 per cent. in 1909; 7·4 per cent. in 1910; and 3·62 per cent. in 1911. It would be interesting to know to what this sudden drop is attributed, as no indication is given in the report, and it does not appear probable that the change can be the result of the medical inspection. It suggests the employment of a new standard or a new medical officer. In a special report by Dr. C. L. Lakin the children from the poorer homes are contrasted with children of the better homes, and it is shown that in the poorer children entrance to school is associated with quickening in growth, whereas in the case of better-off children entrance to school life is associated with a slight retardation of growth. A table of indices of nutrition is given which is computed by expressing the relation of stature to weight by the number of grammes corresponding to each centimetre of stature. Children in the poorer schools weigh 170 grammes per centimetre of stature, children in the better schools weigh 187 grammes. On reviewing the points mentioned Dr. Lakin concludes that if the home circumstances could be improved the physique of the elementary school children would be coincidently raised.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 94 largest English towns having an estimated population of 17,559,219 persons in the middle of this year, 8593 births and 4756 deaths were registered during the week ending March 23rd. The annual rate of mortality in these towns, which had been 15·4, 14·4, and 14·6 per 1000 in the three preceding weeks, declined to 14·1 per 1000 in the week under notice. During the first 12 weeks of the current quarter the mean annual death-rate in these large towns averaged 16·3 per 1000, while in London during the same period the average annual death-rate did not exceed 15·4 per 1000. The annual death-rates last week in the several towns ranged from 4·9 in Walthamstow, 5·7 in Croydon, 5·8 in Gillingham, 6·9 in Ilford, and 7·2 in Ealing, to 20·3 in Great Yarmouth, 22·6 in Salford, 23·3 in Dewsbury, 24·2 in Warrington, and 24·6 in Wolverhampton.

The 4756 deaths from all causes were 174 fewer than the number in the previous week, and included 425 which were referred to the principal epidemic diseases, against 378 and 434 in the two preceding weeks. These 425 deaths from the principal epidemic diseases included 155 from whooping-cough, 138 from measles, 69 from infantile diarrhœal diseases, 35 from diphtheria, 17 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·3 per 1000, against 1·1 and 1·3 in the two preceding weeks. The deaths attributed to whooping-cough, which had been 142, 136, and 159 in the three preceding weeks, slightly fell to 155 last week, and caused the highest annual death-rates of 1·6 in Barrow-in-Furness, 1·8 in Great Yarmouth and in Bury, 2·0 in Salford, 2·5 in Merthyr Tydfil, and 3·3 in Rhondda. The deaths referred to measles, which had been 109, 101, and 137 in the three preceding weeks, were 138 last week; the highest annual death-rates from this disease were 1·8 in Oldham, 2·0 in Cardiff, 2·4 in Portsmouth, 3·8 in Salford, and 5·7 in Warrington. The fatal cases of diarrhœa among infants under 2 years of age, which had steadily increased from 39 to 56 in the four preceding weeks, further rose to 69 last week, and included 21 in London and its suburban districts, 8 in Liverpool, 4 in Manchester, 4 in Sheffield, and 4 in Rhondda. The deaths attributed to diphtheria, which had been 53, 49, and 55 in the three preceding weeks, declined to 35 last week; 10 deaths were recorded in London, 3 in Portsmouth, 2 in Sheffield, and 2 in Rhondda. The deaths referred to

scarlet fever, which had been 21, 25, and 13 in the three previous weeks, were 17 last week, of which 4 were registered in Birmingham, 3 in Sheffield, and 2 in Nottingham. The fatal cases of enteric fever, which had been 14 in each of the two preceding weeks, declined to 11 last week, and included 2 in Warrington, 2 in Sheffield, and 2 in Cardiff.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1392, 1357, and 1384 at the end of the three preceding weeks, had declined to 1368 on Saturday last; 137 new cases of this disease were admitted to these hospitals during the week, against 160, 161, and 152 in the three preceding weeks. These hospitals also contained on Saturday last 1073 cases of diphtheria, 542 of whooping-cough, 210 of measles, and 59 of enteric fever, but not one of small-pox. The 1168 deaths from all causes recorded in London were 63 in excess of the number in the previous week, and were equal to an annual death-rate of 13·5 per 1000. The deaths referred to diseases of the respiratory system, which had steadily declined from 545 to 224 during the six preceding weeks, rose to 246 last week, but were 49 below the number recorded in the corresponding week of last year.

Of the 4756 deaths from all causes in the 94 large towns, 164 resulted from different forms of violence, and 368 were the subject of coroners' inquests. The causes of 33, or 0·7 per cent., of the deaths registered last week were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Sheffield, Leeds, Bristol, West Ham, Bradford, Hull, Newcastle-on-Tyne, Nottingham, and in no fewer than 71 other smaller towns. The 33 uncertified causes of death last week included 8 in Birmingham, 7 in Liverpool, 5 in Gateshead, and 3 in Sunderland.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, having an estimated population of 2,182,400 persons in the middle of this year, 1232 births and 726 deaths were registered during the week ending March 23rd. The annual rate of mortality in these towns, which had declined from 18·7 to 15·4 per 1000 in the three preceding weeks, rose to 17·4 per 1000 in the week under notice. During the first 12 weeks of the current quarter the mean annual rate of mortality in these towns averaged 18·5 per 1000, and was 2·2 per 1000 above the mean rate recorded during the same period in the 94 large English towns. The annual death-rates in the several Scotch towns last week ranged from 5·3 in Partick, 10·3 in Kirkcaldy, and 11·3 in Motherwell, to 20·5 in Dundee, 24·0 in Greenock, and 25·5 in Kilmarnock.

The 726 deaths from all causes were 83 in excess of the number in the previous week, and included 95 which were referred to the principal epidemic diseases, against 76 and 80 in the two preceding weeks. Of these 95 deaths, 50 resulted from measles, 16 from infantile diarrhœal diseases, 13 from whooping-cough, 9 from diphtheria, 5 from scarlet fever, and 2 from enteric fever, but not one from small-pox. These 95 deaths from the principal epidemic diseases were equal to an annual death-rate of 2·3 per 1000, or 1·0 per 1000 above that recorded in the 94 large English towns. The deaths attributed to measles, which had been 56, 39, and 47 in the three preceding weeks, rose to 50 last week, and included 22 in Glasgow, 9 in Edinburgh, 4 in Greenock, 3 in Leith, and 3 in Kilmarnock. The deaths of infants under 2 years of age referred to diarrhœal diseases, which had been 8 in each of the two preceding weeks, rose to 16 last week; 4 deaths were registered in Glasgow and 4 in Dundee. The fatal cases of whooping-cough, which had steadily declined from 18 to 6 in the four preceding weeks, rose to 13 last week, of which 6 occurred in Glasgow and 3 in Dundee. The deaths attributed to diphtheria, which had declined from 22 to 8 in the four preceding weeks, were 9 last week, and included 4 in Glasgow. The deaths referred to scarlet fever, which had been 10 and 7 in the two previous weeks, further declined to 5 last week, of which number 3 were registered in Greenock. The 2 fatal cases of enteric fever occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had continuously declined from 220 to 98 in the six preceding weeks, rose to 107 last week, and 18 deaths were attributed to different forms of violence.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons in the middle of this year, 633 births and 549 deaths were registered during the week ending March 16th. The annual rate of mortality in these towns, which had been 22·1 and 23·1 per 1000 in the two preceding weeks, further rose to 24·7 per 1000 in the week under notice. During the first eleven weeks of the current quarter the mean annual death-rate in these Irish towns averaged 23·6 per 1000; in the 94 large English towns the mean annual death-rate during the same period did not exceed 16·5 per 1000, while in the 18 Scotch towns it was equal to 18·6 per 1000. The annual death-rates in the several Irish towns during the week were equal to 31·8 in Dublin (against 12·7 in London), 19·6 in Belfast, 27·9 in Cork, 20·4 in Londonderry, 14·9 in Limerick, and 20·9 in Waterford; in the remaining 16 of these Irish towns the mean annual death-rate amounted to 22·2 per 1000.

The 549 deaths from all causes in the 22 Irish towns were 37 in excess of the number in the previous week, and included 40 which were referred to the principal epidemic diseases, against numbers increasing from 27 to 41 in the three preceding weeks; of these 40 deaths, 16 resulted from whooping-cough, 8 from infantile diarrhœal diseases, 7 from measles, 5 from diphtheria, 3 from enteric fever, and 1 from scarlet fever, but not one from small-pox. These 40 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·8 per 1000; the death-rate from these diseases in the same week did not exceed 1·3 per 1000 in the 94 large English towns, while in the 18 Scotch towns it was equal to 1·9. The deaths attributed to whooping-cough, which had been 14, 16, and 13 in the three preceding weeks, numbered 16 in the week under notice, and included 10 in Dublin and 4 in Belfast. The deaths of infants under two years of age from diarrhœal diseases, which had increased from 5 to 13 in the three preceding weeks, declined to 8, and comprised 4 in Dublin, 3 in Belfast, and 1 in Londonderry. The 7 fatal cases of measles were 3 in excess of the average in the three preceding weeks, and were all registered in Dublin; the 5 deaths from diphtheria and the 3 fatal cases of enteric fever were also recorded in Dublin, and that of scarlet fever in Belfast.

The deaths referred to diseases of the respiratory system, which had declined from 239 to 135 in the five preceding weeks, rose to 148 in the week under notice. Of the 549 deaths from all causes in the 22 Irish towns, 151, or 28 per cent., occurred in public institutions, and 9 resulted from different forms of violence. The causes of 21, or 3·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 94 large English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

VITAL STATISTICS OF LONDON DURING FEBRUARY, 1912.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 5·3 per 1000 of the population, estimated at 4,519,754 persons in the middle of the year. In the three preceding months the rates were 7·8, 6·3, and 5·3 per 1000 respectively. The lowest rates last month were recorded in the City of Westminster, Stoke Newington, Islington, Holborn, and the City of London; and the highest rates in Bermondsey, Deptford, Greenwich, Lewisham, and Woolwich. The prevalence of scarlet fever showed but little variation from that recorded in the preceding month; this disease was proportionally most prevalent in Fulham, St. Marylebone, Battersea, Deptford, Greenwich, Lewisham, and Woolwich. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING FEBRUARY, 1912.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1912.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.‡										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,519,754	—	727	622	—	83	1	43	358	12	3	1849	5·3	—	60	6	37	98	9	58	268	0·8	5889	17·9
West Districts.																									
Paddington	142,362	—	16	32	—	2	—	3	13	1	—	67	6·1	—	2	—	1	1	—	2	6	0·5	165	16·1
Kensington	171,746	—	24	26	—	—	—	—	5	—	—	55	4·2	—	—	—	1	3	—	1	5	0·4	213	17·5
Hammersmith	122,750	—	15	20	—	1	—	—	9	—	—	45	4·8	—	—	—	2	—	—	1	3	0·3	170	18·8
Fulham	155,402	—	36	24	—	2	—	—	9	1	—	72	6·0	—	3	—	2	4	2	2	13	1·1	216	18·9
Chelsea	65,397	—	9	9	—	—	—	2	4	—	—	24	4·8	—	—	—	—	1	—	—	1	0·2	93	19·2
City of Westminster	157,248	—	14	13	—	—	—	6	7	1	—	41	3·4	—	—	—	—	2	—	2	4	0·3	187	17·4
North Districts.																									
St. Marylebone	116,155	—	27	10	—	2	—	1	19	—	—	59	6·6	—	—	1	—	2	—	2	5	0·6	161	19·3
Hampstead	86,966	—	12	17	—	2	—	—	6	—	—	37	5·6	—	2	—	2	1	—	—	5	0·8	100	17·1
St. Pancras	216,145	—	29	33	—	1	—	3	18	1	—	85	5·1	—	—	1	3	6	—	1	11	0·7	292	18·4
Islington	326,398	—	39	41	—	2	—	1	16	1	—	100	4·0	—	8	—	2	4	—	2	16	0·6	419	17·4
Stoke Newington	50,581	—	4	6	—	—	—	1	3	—	—	14	3·6	—	—	—	—	1	—	—	1	0·3	64	17·2
Hackney	222,986	—	38	24	—	2	—	7	27	1	1	100	5·8	—	—	1	—	2	—	4	7	0·4	248	15·1
Central Districts.																									
Holborn	48,026	—	3	2	—	—	—	—	2	—	—	7	1·9	—	—	—	—	1	—	—	1	0·3	86	25·1
Finsbury	86,130	—	13	17	—	—	—	1	10	—	—	41	6·2	—	1	1	—	2	—	3	7	1·1	155	24·3
City of London	18,695	—	1	1	—	1	—	—	—	—	—	3	2·1	—	—	—	—	—	—	—	—	—	20	15·3
East Districts.																									
Shoreditch	110,430	—	12	15	—	—	—	—	12	—	—	39	4·6	—	—	—	4	2	—	3	9	1·1	163	20·1
Bethnal Green	127,985	—	14	19	—	3	—	—	14	1	—	51	5·2	—	1	—	3	3	—	1	8	0·8	184	18·9
Stepney	277,315	—	26	26	—	7	—	2	26	3	—	90	4·2	—	—	—	3	13	1	8	25	1·2	379	18·6
Poplar	161,597	—	20	17	—	2	—	—	12	—	—	51	4·1	—	1	—	1	17	—	1	20	1·6	234	19·5
South Districts.																									
Southwark	190,017	—	20	14	—	8	—	3	16	—	—	61	4·2	—	8	—	3	8	1	2	22	1·5	307	22·0
Bermondsey	125,260	—	14	32	—	9	—	2	16	—	—	73	7·6	—	3	—	—	4	2	2	11	1·1	211	22·5
Lambeth	297,550	—	52	34	—	14	—	3	22	1	—	126	5·5	—	10	—	2	3	2	4	21	0·9	353	16·0
Battersea	167,589	—	38	13	—	3	—	—	7	—	—	61	4·7	—	2	1	—	—	—	4	7	0·5	182	15·2
Wandsworth	321,881	—	69	35	—	10	—	4	14	—	1	133	5·4	—	2	1	1	8	—	4	16	0·6	345	14·8
Camberwell	261,591	—	41	30	—	6	1	2	19	1	—	100	5·0	—	10	—	2	5	1	2	20	1·0	369	19·1
Deptford	109,377	—	36	18	—	1	—	—	21	—	—	76	9·1	—	1	—	2	—	—	2	5	0·6	152	19·0
Greenwich	96,984	—	29	30	—	1	—	—	14	—	1	75	10·2	—	5	—	1	—	—	1	7	1·0	113	15·6
Lewisham	165,249	—	41	40	—	3	—	2	8	—	—	94	7·4	—	—	—	1	1	—	2	4	0·3	168	13·9
Woolwich	121,932	—	35	24	—	1	—	—	9	—	—	69	7·4	—	1	—	1	4	—	2	8	0·9	140	16·0
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard. ‡ Deaths from "typhus fever" and "other continued fevers" are not now distinguished in the Registrar-General's weekly returns; these two columns are therefore omitted from the Table.

which had been 2103, 1878, and 1473 at the end of the three preceding months, had further declined to 1375 at the end of last month; the weekly admissions averaged 166, against 198 and 165 in the two preceding months. Diphtheria was slightly more prevalent than it had been in the preceding month; among the several metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Paddington, Hampstead, Finsbury, Bermondsey, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 1129 diphtheria patients at the end of last month, against 1327, 1294, and 1191 at the end of the three preceding months; the weekly admissions averaged 137, against 168, 180, and 134 in the three preceding months. The prevalence of enteric fever also showed a slight increase last month; this disease was proportionally most prevalent in Hampstead, Bethnal Green, Stepney, Southwark, Bermondsey, Lambeth, and Wandsworth. There were 64 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 85, 76, and 49 at the end of the three preceding months; the weekly admissions averaged 10, against 9 and 8 in the two preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Hackney, Finsbury, Shoreditch, Bethnal Green, Bermondsey, Deptford, and Greenwich. The 43 cases of puerperal fever notified during the month included 7 in Hackney, 6 in the City of Westminster, 4 in Wandsworth, and 3 each in Paddington, St. Pancras, Southwark, and Lambeth The 12 cases of cerebro-spinal meningitis included 3 in Stepney; and the 3 cases of poliomyelitis belonged respectively to Hackney, Wandsworth, and Greenwich.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the populations of the several boroughs. During the four weeks ending March 2nd the deaths of 5889 London residents were registered, equal to an annual rate of 17·9 per 1000 of the population; in the three preceding months the rates had been 14·1, 16·1, and 16·3 per 1000. The death-rates last month ranged from 13·9 in Lewisham, 14·8 in Wandsworth, 15·1 in Hackney, 15·2 in Battersea, 15·3 in the City of London, and 15·6 in Greenwich, to 20·1 in Shoreditch, 22·0 in Southwark, 22·5 in Bermondsey, 24·3 in Finsbury, and 25·1 in Holborn. The 5889 deaths from all causes included 268 which were referred to the principal infectious diseases; of these, 60 resulted from measles, 6 from scarlet fever, 37 from diphtheria, 98 from whooping-cough, 9 from enteric fever, and 58 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London; among the metropolitan boroughs they caused the lowest death-rates in Hammersmith, Chelsea, the City of Westminster, Stoke Newington, Holborn, and Lewisham, and the highest rates in Fulham, Finsbury, Shoreditch, Stepney, Poplar, Southwark, and Bermondsey. The 60 deaths from measles showed a decline of 160 from the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Southwark, Lambeth, Camberwell, and Greenwich. The 6 fatal cases of scarlet fever were 23 fewer than the corrected average number, and belonged respectively to St. Marylebone, St. Pancras, Hackney, Finsbury, Battersea, and Wandsworth. The 37 deaths from diphtheria were 22 below the corrected average number, and included 4 in Shoreditch and 3 each in St. Pancras, Bethnal Green, Stepney, and Southwark. The 98 fatal cases of whooping-cough showed a decline of 61 from the corrected average number; this disease was proportionally most fatal in Stepney, Poplar, Southwark, Bermondsey, and Woolwich. The 9 deaths from enteric fever were 1 less than the corrected average number; of these 9 deaths, 2 belonged to Fulham, 2 to Bermondsey, and 2 to Lambeth. The mortality from diarrhœa and enteritis among children under two years of age was proportionally greatest in Finsbury, Shoreditch, Stepney, and Battersea. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases (excluding diarrhœa) was 53 9 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeons: E. C. Cridland, to the *Irresistible*, on recommissioning, and to the *Monarch*, on commissioning; and H. H. Gill, to the *Irresistible*, on the *Monarch* commissioning. Staff-Surgeons: J. C. Brogan, to the *Monarch*, on commissioning, and to the *Gossamer*, lent; A. J. Wernet, to Queensferry Sick Quarters; P. L. Crosbie, to the *Vivid*, additional, for disposal; C. R. Sheward, to the *Yarmouth*, on commissioning; S. Roach, to the *Devonshire*, temporary; G. Gibson, to the *Bellona*, on recommissioning; and G. E. McLeod, to the *Sentinel*, on recommissioning. Surgeon: T. Creaser, to the *Pembroke*, additional.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors (dated March 21st, 1912): John P. J. Murphy, Arthur R. Greenwood, and William L. Bennett.

Lieutenant-Colonel J. Donaldson has embarked for a tour of service in South Africa. Lieutenant-Colonel W. A. Morris has arrived home from India. Lieutenant-Colonel H. C. Thurston, C.M.G., has taken up duty at the Royal Military College, Sandhurst, as surgeon, in succession to Lieutenant-Colonel C. C. Reilly. Lieutenant-Colonel A. P. Blenkinsop has embarked for a tour of service in India. Lieutenant-Colonel E. H. L. Lynden Bell has been granted general leave of absence home from India for eight months. Lieutenant-Colonel G. G. Adams has been selected to command the Station Hospital at Secunderabad, in succession to Lieutenant-Colonel H. S. McGill, tour-expired.

Major H. E. Winter has been appointed Deputy Surgeon to the Royal Hospital at Chelsea, in succession to Major F. Kiddle. Major R. W. Clements has taken over medical charge of the Enteric Fever Convalescent Depôt at Wellington. Major W. B. Fry has rejoined from the Egyptian Army. Major L. P. More has taken up duty at the Station Hospital at Secunderabad. Major P. H. Collingwood has been transferred from Plymouth to the Military Hospital at Devonport. Major J. J. W. Prescott, D.S.O., has taken up duty in the Southern Command. Major P. C. Douglass has embarked for a tour of service in India. Major F. G. Richards has arrived home on duty from Jamaica, tour-expired. Major E. B. Steel has been transferred from Delhi to the Station Hospital at Muttra. Captain E. P. Connolly, on arrival in India, has been appointed to the Station Hospital at Lahore. Major F. W. Begbie has rejoined at Colchester from Ipswich on relief by Lieutenant-Colonel J. Battersby. Major N. Faichnie, specialist sanitary officer to the Fifth (Mhow) Division, has been granted eight months' general leave of absence.

Captain E. G. Anthonisz and Captain A. E. F. Hastings have been detailed for duty on board the transport s.s. *Plassy*, which left Bombay for Southampton on March 13th. Captain F. A. Stephens has been appointed for duty to the Station Hospital at Rawal Pindi. Captain D. M. Corbett has been granted eight months' general leave of absence home from India. Captain J. A. W. Webster has been transferred from Kilkenny to the Military Hospital at Cork for duty. Captain T. J. Potter has left the London District for duty in Egypt. Captain J. A. B. Sim has arrived home from Bermuda on the expiration of his tour of foreign service. Captain F. C. Sampson has been appointed to the Scottish Command. Captain C. E. W. S. Fawcett has taken up duty in the Dublin District. Captain C. E. Fleming has been selected for appointment as Specialist in Ophthalmology to the South African Command.

Lieutenant W. H. O'Riordan has embarked for a tour of service in India. Lieutenant C. D. K. Seaver, from Fermoy, has been posted for duty at Ballincollig. Lieutenant M. J. Williamson, from Tidworth, and Lieutenant C. L. Franklin, from Preston, have embarked for a tour of service in South Africa. Lieutenant R. C. G. M. Kinkead has been transferred from Queenstown to the Military Hospital at Cork. Lieutenant T. W. Stallybrass has left the Royal Victoria Hospital, Netley, for service in Egypt. The following Lieutenants on probation have joined the Royal Army Medical College for the junior course of instruction: B. Biggar, T. A. Weston, D. T. M. Large, W. F. Christie, R. K. Mallam,

W. B. Stevenson, C. J. Blaikie, J. H. M. Frobisher, C. M. Ingoldby, O. W. J. Wynne, D. T. Richardson, E. A. Strachan, W. McNaughtan, S. J. Higgins, A. Hood, J. L. Richie, H. R. L'Estrange, P. A. With, and S. J. Barry.

INDIAN MEDICAL SERVICE.

The King has approved of the promotion of the following officers:—

Majors to be Lieutenant-Colonels (dated Jan. 30th, 1912): Bruce Gordon Seton, V.H.S., Robert Henry Elliot, and Robert King Mitter.

Captains to be Majors: George Browse, Herbert Armstrong Williams, D.S.O., and William Christopher Long (dated Jan. 27th, 1912); James Drummond Graham, Cuthbert Allan Sprawson, Maxwell MacKelvie, William Henry Cazaly, Walter Valentine Coppinger, William Mitchell Houston, William David Acheson Keys, Alexander Chalmers, and Samuel Robert Godkin (dated Jan. 26th, 1912).

Lieutenants to be Captains (dated Jan. 30th, 1912): Andrew Monro Jukes, Gwilym Gregory James, William David Keyworth, John Howard Horne, and Alfred John Lee.

Lieutenant-Colonel C. J. Sarkies has arrived home on leave of absence from India. Lieutenant-Colonel F. C. Pereira has been selected for appointment as District Medical Officer at Salem. Lieutenant-Colonel K. Prasad has passed the prescribed test in the Shan language by the lower standard.

Major H. Ainsworth has been granted furlough for three months. Major H. A. Smith has been selected as Civil Surgeon of Simla East in succession to Lieutenant-Colonel H. B. Melville. Major E. A. C. Matthews has been appointed to officiate as Superintendent of the X Ray Institute at Dehra Dun during the absence on leave of Major E. A. Walter. Major C. M. Mathew has been appointed to officiate as Medical Storekeeper in Madras Presidency. Major H. J. K. Bamfield has been appointed Specialist in Midwifery and Diseases of Women and Children in the Second (Rawal Pindi) Division.

Captain J. H. Horne has been placed on special duty for the investigation of malarial fevers in Madras Presidency for a period of three years. The services of Captain F. P. Mackie, officiating chemical examiner, Government analyst and bacteriologist for the United Provinces and Central Provinces, have been replaced at the disposal of the Home Department. Captain R. Knowles has been appointed to hold civil medical charge of the Shansi District, in addition to his military duties, in succession to Major C. Milne, transferred. Captain J. E. Clement has assumed charge of Montgomery as Civil Surgeon. The services of Captain A. W. Howlett have been placed temporarily at the disposal of the Government of India. Captain D. Munro has been granted an extension of leave for three months. Captain W. C. Gray has been appointed Professor of Biology and Secretary to the Principal in the Medical College, Madras. Captain H. B. Scott has been appointed to officiate as Civil Surgeon at Swebo.

TERRITORIAL FORCE.

Royal Army Medical Corps.

4th London General Hospital, Royal Army Medical Corps: James Purves Stewart, late Surgeon-Lieutenant, East London (Tower Hamlets) Royal Engineers (Volunteers), to be Captain (dated Feb. 29th, 1912).

Notts and Derby Mounted Brigade Field Ambulance, Royal Army Medical Corps: Lieutenant Arthur B. Dunne to be Captain (dated Feb. 17th, 1912).

2nd Highland Field Ambulance, Royal Army Medical Corps: Major Alexander Ogston to be Lieutenant-Colonel (dated Feb. 12th, 1912).

2nd Home Counties Field Ambulance, Royal Army Corps: Lieutenant William H. Flint to be Captain (dated Dec. 8th, 1911).

1st Lowland Field Ambulance, Royal Army Medical Corps: Lieutenant Geoffrey Balmanno Fleming, from the List of Officers attached to Units other than Medical Units, to be Lieutenant (dated Feb. 21st, 1912).

1st West Riding Field Ambulance, Royal Army Medical Corps: Lieutenant Walter Lister to be Captain (dated Feb. 21st, 1912).

1st London (City of London) General Hospital, Royal Army Medical Corps: The undermentioned officers resign their commissions (dated March 27th, 1912):— Lieutenant-Colonel Norman Moore, and Lieutenant-Colonel William H. Crippa.

Attached to Units other than Medical Units.—Lieutenant Henry A. C. Harris to be Captain (dated Dec. 8th, 1911).

ESPERANTO AND THE RED CROSS.

Dr. G. Jameson Johnston, consul in Ireland for the All-World Esperanto Doctors' Association (to literally translate Tutmonda Esperanta Kuracista Asocio), writes, with reference to the note on this subject in our issue of March 9th: "Permit me to state that I was present at the Red Cross manœuvres which took place at the Seventh International Esperanto Congress in Antwerp last August. The municipal authorities granted the use of one of the public squares, and the military the necessary equipment. The nurses, bearers, &c., were members of the local Red Cross societies, and the patients were selected at random from the representatives of the 36 different nations who attended the congress. There were a first-dressing station, receiving station, and base hospital. A diagnosis card was attached to each patient, and international committees of doctors (my colleagues were a Russian and a Chilian) reported on the treatment. The arrangements were perfectly carried out, no language being used save Esperanto. Although many 'isms' are represented in the movement, still the 'cranks' form a very small part of the whole body. The language is now long past the 'hobby' stage and is a world-wide living language, remarkably easy to learn. Here in Dublin there are over 15 members of the Universal Medical Association, and more are joining. The Provost of Trinity College, who graduated in medicine, is a strong supporter of Esperanto." We accept our correspondent's statement that the cranks form a very small part of the whole body of Esperantists, but this does not vitiate our argument that the progress of Esperanto in this country has been retarded by its association in the public mind, rightly or wrongly, with other ideas outside that of an international means of communication between the peoples of the world.

ROYAL ARMY MEDICAL CORPS SHORTAGE.

Owing to deficiencies from failure to obtain recruits, approval has been given to call up with their own consent, for duty with regular companies, trained special reservists of category (*a*) of the Royal Army Medical Corps Special Reserve. Recruiting has recently been opened throughout Ireland for the Royal Army Medical Corps Reserve.

LITERARY INTELLIGENCE.—We are informed that the Liverpool School of Tropical Medicine will shortly issue in at least four parts every year, the "Annals of Tropical Sanitation," edited by Professor Sir Ronald Ross, K.C.B., with the assistance of Colonel W. G. King, C.I.E., and Professor W. J. Simpson, C.M.G. The annual volume will contain at least 500 pages, and the size of the page will be the same as that of the "Annals of Tropical Medicine and Parasitology." Annual subscription one guinea, payable in advance. Separate numbers 7*s.* 6*d.* each.

THE RELATIONS OF THE CLERGY AND THE MEDICAL PROFESSION.—The special committee which was appointed at a conference of the clerical and medical professions in London in October, 1910, "to consider the asserted results and the rapid development of so-called 'Spiritual' or 'Faith Healing' movements," has issued a report. The committee held 22 meetings and took evidence from many medical practitioners, clergy, and persons associated with "Spiritual" or "Faith Healing." The committee finds "that after careful and extensive inquiry there is not sufficient proof of any general or frequent failure (as has been alleged) of cordial relations between the medical practitioner and the minister of religion in their respective ministrations to the same sick person. Such cases are exceptional and rare." Any separate or independent treatment of the sick on the part of the clergy is strongly deprecated. There is further room for coöperation, within well-defined limits, between the two professions, particularly in certain nervous and mental cases—functional disorders, minor obsessions, or vicious habits, in which patients can often be approached from the spiritual side when medical suggestion is difficult to apply. An enlarged permanent committee of clergy and medical practitioners has been constituted to continue investigations, with the Right Rev. Herbert E. Ryle, D.D., Dean of Westminster, as chairman.

Correspondence.

"Audi alteram partem."

THE VALUE OF PNEUMOCOCCUS VACCINE IN THE TREATMENT OF PNEUMONIA.

To the Editor of THE LANCET.

SIR,—I do not propose to take up your space with any discussion of the intimate pathology of pneumonia, which would yet be in point in relation to the influence of vaccines upon the disease. I trust that before Dr. Nathan Raw finally advises the use of such frequent doses of the vaccine in pneumonia he will support his recommendation by a considerable series of cases besides the two very interesting ones to which he alludes. One's small experience of the effect of vaccines, when they have any useful effect, is that they are followed by some reaction symptoms, and one would doubt the advantage, or even the safety, of giving a second dose at or before the reaction period of the first. Perhaps I have too vividly in my recollection a drama, *The Doctor's Dilemma*, to which I listened with amusement but some heart searchings a year or two ago!

The control of diphtheria by antitoxin is, of course, a totally different treatment from that now in question, being the use of a serum, not a vaccine.

I am, Sir, yours faithfully,

Portland-place, W., March 23rd, 1912. R. DOUGLAS POWELL.

A NATIONAL HEALTH WEEK.

To the Editor of THE LANCET.

SIR,—Will you grant me a few lines of your space to call the attention of those specially interested in public health to the work which is now being done in connexion with a National Health Week.

The main point underlying the idea is that the time has nearly approached when if there is to be any further marked advance in the hygienic condition of the people the public conscience must be stirred as to the importance of personal hygiene—e.g., cleanliness, rational feeding, and matters of this kind. There is not the slightest suggestion that in instituting Health Week any criticism is to be made of the work done by the recognised sanitary authorities, the whole idea being that what is done will be supplementary to their work.

For Health Week to be a success it is necessary for all who are interested in matters hygienic to give any aid they can to the project, and it is obvious that in those towns and districts where a Health Week is being observed great help will be rendered to the movement if the medical profession generally give a strong support to it. The main idea, therefore, of the celebration is to try to arouse an interest in the private individual in matters concerning his own and his family's health; to lead him to understand what infant mortality means and how it can be dealt with; to let him see how necessary it is for private effort to be added to public in order that the great scourge of consumption may be properly dealt with. This and many other problems now awaiting solution can only be effectively dealt with by the whole-hearted coöperation of the private citizen.

I desire particularly to emphasise the view that we are not forming any new society. We are not clashing with any existing institute or authority. The committee is, in fact, mainly composed of officers of the leading health societies, nominated by those societies as their representatives. Any local Health Week celebrations will be under the control of a local committee, in which it is hoped that all sorts and conditions of people will join. The first Health Week will begin on Sunday, April 28th. The extent to which it is observed will depend entirely on local conditions. It is hoped that the clergy will lend their aid by dealing with the subject in some way in a sermon on that day, and that other forms of celebration, such as towns meetings, lectures or exhibitions, will subsequently take place.

As has been pointed out, we have no desire to do anything that may be termed sensational, but desire by steady and continued work to lead the public, not only in 1912, but in future years, to bear in mind what can be done by a united effort, in removing those hindrances to the enjoyment of good health which are still only too evident.

I am, Sir, yours faithfully,

A. BOSTOCK HILL,
Chairman of the National Health Week Committee.

Temple-street, Birmingham, March 22nd, 1912.

CÆSAREAN SECTION FOR DOUBLE MONSTROSITY.

To the Editor of THE LANCET.

SIR,—I think the following case worthy of publication for two reasons: (1) So far as I can discover, Cæsarean section has not been performed previously for the same condition; (2) the condition of the child, or monster, seems to be a new, though necessarily very rare, indication for the operation.

The patient, 39 years of age, had already had four normal pregnancies, and the youngest child was 11 years old. When I first saw her she had been in labour for 30 hours. A foot had been presenting at the vulva for two hours but the labour pains had been poor. She was under an anæsthetic when I arrived; her pulse was 140 and very feeble. A rapid examination convinced me that no intra-uterine interference could be finished quickly enough to ensure the patient's safety, and I decided to approach the uterus through the abdominal wall. On opening the peritoneal cavity the uterus was pulled well forward, and was thoroughly packed off from it with sterile towels. A fairly free incision was made into the uterus, and a dead double male monster was delivered with some difficulty as the hips were jammed in the pelvis. The placenta was detached, the interior of the uterus swabbed with double cyanide gauze, and the wound sewn up first with interrupted mattress sutures, then with a continuous peritoneal suture. The abdominal wall was closed in the usual way. The patient made an uninterrupted recovery.

The monster proved to be of the thoracopagus variety, the junction extending in length from the manubrium sterni to below the umbilicus, and in width from one side of the body to the other, quite unlike the flimsy junction which seems to be the rule in these monstrosities. A glance at the specimen assured me that under the circumstances embryotomy would have been much the more dangerous expedient to adopt. The specimen weighed 14 lb., and is now in the Museum of the Royal College of Surgeons.

I searched the following literature but failed to find a case which required similar treatment: (1) "Monster (Double)," U.S. Surgeon-General's Index Catalogue; (2) "Monsters," in the General Index, Transactions of the Obstetrical Society of London; (3) "Cases of Abdominal Cæsarean Section," collected by Dr. Amand Routh; (4) "On the Mechanism and Management of Delivery in cases of Double Monstrosity," W. S. Playfair, Transactions of the Obstetrical Society, 1866; (5) "Index Medicus," 1909–1910: Smith, "The Relative Indications for Cæsarean Section," *Ohio Medical Journal*, 1908; R. E. Webster, "Cæsarean Section," *Montreal Medical Journal*; A. C. Buist, "Cæsarean Section with Unusual Indications," *British Medical Journal*, 1909.

I am, Sir, yours faithfully,

St. Leonards-on-Sea, March 21st, 1912. DAVID LIGAT.

THE PRESCRIPTION OF TUBERCULIN.

To the Editor of THE LANCET.

SIR,—It is to be regretted that Mr. Squire's advocacy for expressing the dose of tuberculin in fractions of a c.c. has not been more vigorously controverted in England.[1] All tuberculins are either solutions or suspensions in water of one or more solid chemical principles. If we consider how such a substance as T.R. is produced the conclusion is forced upon us that it is highly improbable that an identical amount of solid extract is obtained from every 10 mg. or multiple of 10 mg. of tubercle bacilli; it is not probable that every c.c. of T.R. purchased will contain an identical amount of the active principle. The amount may be approximately similar, but it will not be identical. For instance, it will vary with the length of time the bacilli have been triturated and with the force of trituration.

[1] THE LANCET, Jan. 6th, 1912, p. 57.

As physicians we are concerned, not with the amount of the solvent used, but with the amount of the active principle in each c.c. of the solvent. The same criticism applies to emulsions. We wish to know exactly how much solid substance is held in suspension and solution in each c.c. of the particular preparation.

The original preparations of tuberculin are not accurate standard solutions comparable with normal soda solutions, nor are they volatile fluids like alcohol or ether, the dose of which may be correctly estimated by fluid measure.

It would be of considerable advantage to the practising physician if all manufacturers of tuberculin would adopt a uniform principle for the standardisation of tuberculin, and the standard should be this—namely, that 1 c.c. of every variety of concentrated tuberculin should contain 1 mg. of solid residue. I had hoped that this suggestion would have been discussed and recommended by the medical congress which was held in Sydney last year, but there was so much business for congress to transact that no time could be given to the matter. During last year I injected not less than 2000 doses of tuberculin, and I have found that the preparations of concentrated tuberculin T.R. obtained from different manufacturers do not always contain the same amount of solid residue. Therefore the results from the use of tuberculin by different clinicians cannot safely be compared so long as we estimate the dose of tuberculin by fluid measure. If tuberculin solution could be physiologically standardised like infusion of digitalis the difficulty could be removed. At present the only safe method is to express the dose in decimal fractions of milligrammes solid substance. I should further advocate that doses of tuberculin less than 1 mg. be registered in negative powers of 10 rather than in ordinary decimals. Thus 0·1 mg. is 10 to the power of minus 1 (10^{-1}), 0·01 mg. is 10 to the power of minus 2 (10^{-2}). 0·05 is 5×10^{-2}. The advantage of this method is that one is less liable to confuse the doses; thus the doses marked respectively 10^{-4} and 10^{-5} mg. are less readily confused than they would be if marked 0·0001 mg. and 0·00001 mg.

I am, Sir, yours faithfully.

C. REISSMANN, M.D., M.R.C.P.,
Physician, Kalyra Sanatorium; Honorary Physician, Consumption Department, Adelaide Hospital; and Lecturer, Forensic Medicine, University of Adelaide.

Adelaide, S.A., Feb. 22nd, 1912.

THE CAUSATION OF TOXIC SYMPTOMS FOLLOWING THE ADMINISTRATION OF SALVARSAN.

To the Editor of THE LANCET.

SIR,—We fully admit the justice of Dr. McIntosh's statement that it is difficult whilst a paper is being read to follow all the points raised. He cannot, however, have forgotten that in the paper referred to we again described the simple control experiments we had already published[1] in detail in December, 1911. These experiments showed that injection of water or saline found to be practically bacteria-free often produces high fever. If these experiments were good experiments the value of the contention that salvarsan fever (not including fever in acute secondary cases) is necessarily due to the presence in the solutions of large numbers of organisms at once vanishes. Until, therefore, these experiments are repeated, and their accuracy tested, Dr. McIntosh is scarcely in a position to dispute our statement as to the frequent possession of pyrogenetic properties by sterile saline. The objection that our later experiments cannot be studied in detail till their appearance in print surely does not justify him in ignoring experiments published in full three months ago—experiments that, if good, are clearly fatal to his views.

We are, Sir, yours faithfully,

E. C. HORT,
W. J. PENFOLD.

Harley-street, W., March 22nd, 1912.

[1] Brit. Med. Jour., Dec. 16th, 1911, pp. 1589 et seq.

PNEUMOSAN AS A REMEDY FOR TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—It is with great diffidence that I make some remarks on this preparation, and I say at once that my sole reason for so doing is the desire to bring before the medical profession my own genuine experiences in the use of the preparation. I am confronted by the fact that for centuries physicians have endeavoured to find a cure for tuberculosis. The remedies are legion, and many have proved utterly futile upon trial, consequently I feel that any comments on a new remedy should be made very guardedly, and that in reporting any result from its use the bare facts alone should be stated.

The alternative to sanatorium treatment, with its different indications for different cases, is at present tuberculin injections, but that they are liable to be dangerous and have many limitations has been asserted by undeniable authority, a view which I have held all along. The early cases with no breaking down and no mixed infection, the very cases, in fact, best treated by tuberculin, are fairly easily cured by sanatorium treatment without risk, by a treatment, in other words, of lung asepsis or lung hygiene, which prevents, or should prevent, the formation of secondary infections, and in some cases will clear up early cases of mixed infection. Undoubtedly the chief danger we have to meet are the secondary infections. Vaccines and serums in these cases hold a very valuable place in the treatment of pulmonary tuberculosis. Their use, however, is limited to a few, mainly on account of expense, time, the difficulty of handling, the expert bacteriological care required in their manufacture, the susceptibility of the patient to their action, and the fact that the practitioner must always be on the alert, and in constant attendance on the patient. To the busy general practitioner this is not possible.

A preparation which might have a direct action on the pathogenic organisms in the lungs would therefore be of such great value that if any evidence in favour of such a preparation is forthcoming I think it should be given a trial. A medical friend of mine brought pneumosan to my notice and I commenced to use it with an open mind and expecting no great results. I determined to accept nothing but hard facts patent to everyone, and more especially patent to the patients themselves. I hold no brief for pneumosan. I did not know of its existence until it was recommended to me. I am purely interested in it from a medical point of view in connexion with the treatment of pulmonary tuberculosis. Pneumosan, according to the description of its inventor, Dr. Caesare Ballabene, is an amyl-thio-trimethylene compound which destroys the bacillus of Koch in the foci, this being testified to by the abatement of fever and the opsonic index rising; through the amylic compounds the nervous system is helped and the appetite improved; and good dietetic and hygienic regimen completes the cure. The preparation is given by intra-muscular injections. The dosage is from four to ten minims, then a rest of two days is given; then the same dose is followed by three weeks' rest, and then another series of ten injections is given. This may be followed by a fourth or fifth series of injections if necessary—in fact, the number is not limited. The gluteal or scapular region is recommended, but I have used the deltoid region as more convenient for injection.

My experience tends to confirm what is claimed for pneumosan. I am unable to state that it cures tuberculosis, if only because sufficient time has not yet elapsed in my cases to justify such a statement. I have given the preparation in some 50 cases. In no instance has any harm resulted, and no irritation has occurred at the site of injection. In the advanced cases I had some striking results. A bad laryngeal case with pulmonary cavitation was enabled to get up after a few injections, having been in bed for five weeks with fever, the temperature gradually coming to normal. The expectoration diminished, and bad night sweats ceased. The weight gained was satisfactory. The pulmonary physical signs improved, but no change in the larynx was seen, although as the general condition was so improving probably the larynx was too, only imperceptibly. In another case who was fast losing ground, with cavitation and rapid breaking down, also ulceration of the left vocal cord, fever, and night sweats, the patient commenced to hold her own after the first series of pneumosan, her general condition improved, weight

was gained, night sweats ceased, and the morbid processes in the lung and larynx seemed to become controlled. Her general condition so improved that finally this patient could walk three miles comfortably. All the advanced cases except two made much the same progress as the above; one of the unsuccessful cases was complicated by diarrhœa, and the treatment was discontinued before the third series of injections. In cases of the first and second stages, with mixed infection in some, I have noticed the best results—namely, improved appetite, weight gain, night-sweats cease in nearly every instance, cough is lessened, and expectoration diminished, and to quote the words of the patients themselves: "They feel better, eat better, sleep better, and have an increased sense of well being." It has never been claimed for pneumosan that it is an absolute and positive cure for every case of tuberculosis, but my experience it that it does good, and that with its help improvemens may ensue even in advanced cases. Therefore I think it deserves serious consideration and careful trial from members of the medical profession. In judging results, however, it must be borne in mind that all my patients injected with pneumosan were carrying out strict sanatorium treatment.

I am, Sir, yours faithfully,

J. PENN MILTON, M.R.C.S. Eng., L.R.C.P. Lond.,
Honorary Physician, Plymouth Public Dispensary; late Medical Partner to Dr. Otto Walther, Nordrach-Colonie, Black Forest, Germany; and Medical Superintendent to the Devon and Cornwall Sanatorium.

Udal Torre Sanatorium, Yelverton, R.S.O., S. Devon, March 18th, 1912.

THE "CHOLERA BELT."

To the Editor of THE LANCET.

SIR,—As an old Indian practitioner I have been interested in reading the notices of two recent works on disease prevention in India that have recently appeared in your columns. In one of these I see it stated that the authors do not recommend the use of the so-called cholera belt as a preventive measure against either cholera or dysentery. With your permission I should like to draw attention to the question of this "cholera belt." In their work on Tropical Hygiene, Sir C. Lukis and Major R. J. Blackham advise certain preventive measures to be taken in regard to cholera and dysentery; in neither case do they advise the protection of the abdomen by wearing a flannel belt, as used to be the custom in former days. In discussing the subject of clothing (p. 85) their opinion is that it is of little value for this purpose. Yet they advise its use at night, and point out that chill often leads to diarrhœa or dysentery. If it protects from chill at night, why not also by day? The liability to contract chill after exercise, whether on the parade ground or at polo, is undoubted. Lieutenant-Colonel P. Hehir, on the other hand, strongly recommends the belt, "at the risk of being considered old-fashioned"[1]; he states that it maintains an equilibrium in the circulation around the organs most likely to be affected by changes of temperature. He says that many British officers consider it a fad. What is the opinion of Indian officers? With the light clothing that is invariably worn during the hot season in a tropical climate, and the considerable perspiration that results on slight exertion, there is surely need for specially protecting the liver and abdominal organs generally, both by day and by night. The name is perhaps an unfortunate one, but from a physiological point of view to guard against sudden internal congestion of the liver and bowels from chill to the abdominal surface appears to be a sound principle. It would be interesting to learn if there is any scientific reason for the disuse of what, until a few years ago, was recognised as a useful measure of protection.

I am, Sir, yours faithfully,

March 18th, 1912. ANGLO-INDIAN.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—Why do not the advocates of payment for work done tell us how they would deal with the two great obstacles to the system they propose? I allude to overcharge by doctors and bookkeeping. As regards the first, I suppose they would insist on an adequate fee; shall we say 2*s.* 6*d.* a visit? And I suppose, too, the doctor must have the right to say how often he must visit his patient? He cannot possibly submit to any committee or other body saying he shall only go, or at any rate only be paid for, so many visits in a certain time. If this is granted the rest follows. I have at present six club patients permanently on the sick list, every one of whom would be glad to see me daily; they would be worth £273 per annum under that scale of pay. Even the humble shilling would yield £109 per annum.

What I venture to submit as the second objection—bookkeeping—has not, so far as I know, been suggested hitherto. I presume that a detailed account would have to be sent in to the Insurance Committee for every patient attended. The account would certainly have to be in a particular form to allow of checking. It would probably be a rule that all accounts would have to be sent in within a limited time—say a month—of becoming due. (This would be necessary; otherwise it would be impossible for the office to keep the books accurately, and confusion would arise from removals and lapses.) Any departure from the prescribed rates, such as extra visits, mileage, night calls, would have to be duly explained in such a way as to satisfy a Government auditor.

Let the advocates of payment for work done think what it means to keep medical books from day to day in such a manner that accounts such as these can be sent out. No A B C method or abridged system of any kind will do; nothing short of full day-book and ledger would meet it. Think, too, of copying out 400 or 500 such accounts positively during the first month of every quarter, and then, too, think of the correspondence that would follow—e.g., "John Smith, Timbuctoo-terrace, we cannot trace, he is not on your list"; "Your charge of 1*s.* mileage is disallowed, the distance by Ordnance map is 1 mile 1759 yards," &c. No, Sir, payment for work done is unattainable, and I venture to submit undesirable.

I am, Sir, yours faithfully,

Leeds, March 23rd, 1912. CHARLES F. SEVILLE, M.B. Lond.

To the Editor of THE LANCET.

SIR,—I should like very briefly to allude to the three letters which appear in THE LANCET of last week under this heading. Mr. George Brown, I believe, voices the opinion of the general practitioner much more accurately than the Council of the British Medical Association has done. Payment for work done *versus* per capita payment has never been put before the medical profession as a clear issue. The Association has, quite wrongly I think, taken it for granted that the latter mode of payment is necessary under certain conditions, and has most unfairly kept the former in the background—*vide* the decision at the last Representative Meeting.

Dr. Hall's contention, "that in view of the falling sickness rate the premium method is the only means by which our incomes can be maintained," is, I think, quite indefensible. I have always thought that our peculiar and pre-eminent claim to the title of an honourable profession consisted in the fact that we are daily, nay hourly, doing all we can to enable our patients to dispense with our services; and surely no greater triumph can be imagined than the advent of that happy day when one doctor will be able to take the place of six or more. In the meantime let us be paid a fair fee for what we do.

Dr. Cook seems to forget that 8*s.* 6*d.* is already paid by the Government for Post Office employees. This is a very "solid reason," such as Dr. Cook seeks, for our demanding "more," seeing that the lives will not be selected ones.

I am, Sir, yours faithfully,

T. CUMING ASKIN, M.D. Dub.

Alderton, Suffolk, March 25th, 1912.

To the Editor of THE LANCET.

SIR,—In the current number of THE LANCET two of your correspondents seek information as to the average number of attendances required during the year by a member of a club. I doubt if any records of numbers sufficiently large to be reliable in striking an average are to be found, but data sufficient to form the basis of a rough estimate exist scattered through the pages of your "Battle of the Clubs."

First as to generalities, frequent mention is made of the amounts paid by different clubs to their medical officers. These sums vary from 2*s.* to 4*s.* 4*d.* per annum, the most usual sum paid being 3*s.* 6*d.* The average amount paid per

[1] Prevention of Disease and Inefficiency, p. 375.

visit is referred to as being from 1½*d.* to 8*d.*, the figures most frequently quoted being 2*d.* to 3*d.* If we take 3*s.* 6*d.* as the mean subscription per head per annum and 4*d.* as the mean value per visit, this gives 10·5 visits per member per annum.

In certain cases the actual numbers of members of clubs and the consultations given and visits paid are stated. These numbers when totalled amount to 52,551 members who required 226,446 attendances, or an average of 4·30 attendances per member. These numbers are not absolutely correct, for in the case of Hull the numbers are only given in round thousands, and in the case of Northampton the number of members is an estimate only. The difference in result between these two methods of calculating is somewhat large, but it is probable that the true average lies somewhere between the two, and probably nearer to the lower figure than the higher, and it would probably be safe to put the number at six visits per member per annum.

In order to pay 2*s.* 6*d.* per visit on this basis the capitation fee would have to be 15*s.*

I am, Sir, yours faithfully,

Ramsgate, March 25th, 1912. FRANK MILTON.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Need and Advantages of "School Clinics."

AT the annual meeting of the Manchester, Salford, and District Branch of the National Union of Woman Workers, which was held in Manchester on March 19th, interesting papers on school clinics were read. Miss McMillan, speaking on "Education and Nurture," said that the need for school clinics rested on the fact that the majority of the children of working people were not sufficiently nurtured. This was not entirely due to poverty, but partly to the condition of industrial life in this country, which had devastated home life and destroyed the arts and crafts of motherhood. School clinics, said Miss McMillan, provide a new agency in substitution to some extent for the private nursery. Mr. R. H. Tawney, in the course of an address on "School Clinics," pointed out that we are putting an impossible task on the teachers when we send the children to school in an unhealthy condition. The Manchester school returns showed that one-third of the children had defective eyesight at the school-leaving age. These diseases increased between 5 and 13, and it was obvious that this evil was not to be remedied by leaving it alone. In the majority of cases the parents were not in a position to secure proper medical advice and treatment, and the only effective way of dealing with the children was to establish school clinics in the city. The cost of two clinics larger than the one at Bradford would not amount to more than $\frac{1}{10}$th to $\frac{1}{12}$th of a penny rate per year. In connexion with the cost there must be taken into account the present heavy loss of grants caused by the absence of children from school through illness—a loss which would be considerably reduced by the work of the clinics.

A conference on "School Clinics," which was largely attended, was held here on March 21st, when Dr. Lewis Williams described the work that is being done in Bradford, and Mr. W. Jones gave an account of what is done in regard to the preservation of the teeth of school children in Cambridge. Manchester so far has not adopted any system of school clinics, chiefly because of the lack of any compensatory grant from the Government. Dr. Williams pointed out that even to the untrained eye it was obvious that a large number of scholars were being allowed to grow up more or less physically deformed, and with the prospect of their future careers seriously threatened by the unenviable possession of one or more of the defects so common during school life—such as defective vision, defective hearing, stammering, spinal curvature, decayed teeth, or adenoids, any of which must interfere with the child's capacity as a wage earner in adult life. Indeed, some defects debarred them entirely from certain occupations. Speaking of the establishment of a school clinic, he asserted that it should be administered by the education authority, if the three following necessary conditions are to be obtained: (1) The submitting of the children to treatment; (2) their regular attendance during treatment; and (3) their speedy return to school after treatment. Mr. Jones stated that bad teeth undermined the health and happiness of 85 per cent. of school children.

Children's Hospital and the Act.

The yearly meeting of subscribers to the Manchester Children's Hospital was held on March 20th, when the annual report was presented. The report states:—

> The passing of the Insurance Act has given rise to much anxiety on the part of voluntary hospitals, because it is feared that charitably disposed persons may think that there is no longer any necessity for their support. When, however, it is realised that on the one hand the medical benefit given by the Act does not in any way meet the cases of the vast majority of the inmates of hospitals, and will not lessen the demands upon or the need for the work of such institutions, while on the other hand the Act does not give the hospitals any right to a share in public funds, it is to be hoped that the stream of private benevolence will not be permanently affected. ..... But whatsoever view may be taken as to general hospitals, it should be remembered that the case as regards children's hospitals is different. They do not cater for insured persons. The Act makes no provision for sick children beyond the possibility that in some consumptive cases the children of insured persons may be admitted to sanatoria. If the support given to such hospitals falls off, children will suffer just as they would have done if the Act had not been passed.

March 25th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Bequest by Lord Lister to Edinburgh University.

AT the monthly meeting of the Edinburgh University Court, held on March 18th, it was intimated that the late Lord Lister had made certain bequests to the University of Edinburgh. These included the insignia of the Prussian Order of Knighthood and of the English Order of Merit; the medals received since his studentship from the Royal Society and other learned bodies; diplomas, &c., conferred by scientific bodies, and various honorary gifts and distinctions. Among the latter are the caskets containing the freedom of the cities of London, Edinburgh, and Glasgow, and of the Merchant Taylors' Company, and the trowel presented to him when opening a new nurses' home at Montreal, together with his portrait in oils. The Court resolved to record their high appreciation of the bequest as a testimony of Lord Lister's affection for the University and city in which he began his professional career, and of his having chosen the University of Edinburgh as the depository of these memorials of his fame and of his place in history as one of the great benefactors of mankind.

Diploma in Psychiatry.

At the meeting of the Edinburgh University Court, held on March 18th, it was resolved to admit women medical practitioners to the University course on physiology of the brain and nervous system for the diploma in psychiatry.

Royal Edinburgh Hospital for Sick Children.

The fifty-third annual general meeting of the contributors to the Royal Edinburgh Hospital for Sick Children was held on March 20th. The directors' report stated that the indoor cases during the year numbered 2031, as compared with 2034 in 1910. Of these cases 1391 were medical and 640 surgical. In the out-patient department 24,513 cases had been treated, as compared with 28,315 in 1910. The ordinary income was £5987 8*s.* 8*d.*, while the ordinary expenditure had been £8465 17*s.* 7*d.* As regarded the convalescent home the directors were satisfied that the cost of its maintenance, amounting to £777, was more than repaid by the benefit the patients derived from residence there. During the year 179 patients had been sent to the convalescent home from the hospital. The medical report drew attention to the fact that nearly half the out-patients were children under two years of age, which accounted for the fact that fully one-third of the beds in the hospital had to be relegated to the treatment of infants. The staff suggested that it was desirable to consider the advisability of adding a milk depôt to the therapeutic resources of the hospital, and the chairman of the directors, in moving the adoption of the report, pointed out the need for further contributions if the scheme were to be carried out, and a proposed balcony accommodation provided.

Annual Report of the Crichton Royal Institution, Dumfries, for the Year 1911.

At this institution the average daily number on the registers was 865·8. During the year there were 202 admissions, of which 159 were certificated and 38 voluntary patients. Of the cases admitted 25 had had one or more previous attacks of insanity, while 100 were suffering from their first attack of mental disorder. The mean age on admission was 45·2, the youngest being a girl of 15 and the oldest a man of 82. The exciting causes of the attacks, apart from distinctly nervous constitutions, inherited or acquired, were most commonly of the nature of worry, affliction, shock, and similar psychical factors and various antecedent bodily illnesses. It is reported that 35 persons admitted were in fair bodily health, 70 were in poor bodily health, and 20 in a weak physical condition. There were 129 discharges representing 124 persons, 87 of whom had been certificated and 37 voluntary patients. The recovery rate of the certificated patients, based on the receptions, was 47·2 per cent. The forms of mental affection recovered from were chiefly in order of frequency, melancholia, delusional insanity, mania, and confusional insanity. In 74 per cent. of the recoveries the mental illness had lasted in all less than a year. The deaths numbered 43 certificated patients and 2 voluntary boarders; the death-rate of the former, based on the average resident population, was 5·2 per cent. The principal causes of death were affections of the heart in 12 cases, exhaustion from melancholia and mania in 7 cases, senile decay in 5 cases, and general paralysis in 4 cases. Only 2 patients died from tuberculosis. Necropsies were held in 79 per cent. of the deaths. Dr. C. C. Easterbrook, the physician superintendent, writes that it is difficult to say to what extent the far-reaching and unwieldy National Insurance Act, 1911, will apply to the institution. Should the Act apply it will be an egregious burden and hardship, for it will ensure only a modicum of the benefits at present enjoyed by those employed on the permanent staff, the institution officials being pensionable and receiving during illness full wages in addition to medical treatment and attendance, and the wives and children of married men living on the estate being also, during their much more frequent illnesses, attended by the resident medical staff.

March 25th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

High Death-rates in Ireland.

THE death-rates in several Irish towns have reached abnormally high figures in the past few weeks. In the Dublin registration area, for the week ending March 16th, the death-rate was 31·8 per 1000 per annum. Curiously it was less in the city, 31·1, than in some of the suburban townships—Rathmines and Rathgar 36·2, and Kingstown 42·4. In some provincial towns the rates were also very high. Thus, in Ballymena the death-rate reached 36·7, and in Kilkenny 44·6.

Dublin Hospital Sunday Fund.

After some years' falling off the Dublin Hospital Sunday Fund last year realised £3454 6*s.* 9*d.*, an increase of £113 9*s.* over 1910. The hospital football match contributed £100.

Disgraceful Behaviour at Ballinrobe.

At a recent meeting of the Ballinrobe, co. Mayo, Poor-law guardians one of the guardians proposed a motion to rescind an increase of medical salaries passed at a previous meeting. The meeting was packed with visitors armed with sticks, who violently shouted down the medical officer, the Local Government Board inspector, and others who essayed to speak against the motion, which was carried by 14 to 10. If, however, the Local Government Board had sanctioned the increase, it could not legally be altered or reversed.

The Dental Hospital of Ireland.

The annual report of the Dental Hospital of Ireland, issued a few days ago, states that the number of cases treated during the year amounted to 48,370. There were 2183 operations under anæsthetics. The number of students on the roll of the school during the year was 48.

The Insurance Act Lectures.

Some of the lecturers appointed under the Insurance Act to enlighten the public are giving very pleasing, though it may be feared not altogether accurate, information. For instance, at a meeting held in Belfast on Feb. 19th, a paid lecturer stated, according to the local papers, that the Act would provide from the very first sanatorium benefit which would remove at one stroke the whole consumptive population and send them back free from contagious disease in a year, thus relieving the rest of the population from danger of contamination. During 1910 the public health department of the city of Belfast dealt with 1173 cases that were either voluntarily or compulsorily notified as tuberculosis of the lungs It would be a tall order to provide sanatorium treatment for them all; and to say that after a year's residence in a sanatorium they would return "free from contagious disease" is absurd. It shows the nonsense of appointing lecturers to deal with a subject about which their knowledge is nil.

A Libel Case.

In a libel action brought at Belfast Spring Assizes on March 19th and 20th, by a dairyman against the Belfast *Northern Whig*, on account of an article stating that the Belfast Health Committee claimed to have found the cause of the outbreak of diphtheria in the milk coming from a certain farm, and recounting the evidence on which the committee's assertion was made, the jury, after only five minutes' absence, rendered a verdict for the *Northern Whig* with costs.

Down County Infirmary.

From the annual report it appears that the total income for the year ended Dec. 31st, 1911, was £2403 15*s.* 8*d.*, and the expenditure £2444 18*s.* 1*d.*, leaving a balance due of £41 2*s.* 5*d.* During the year 2027 were treated, 716 in hospital, and 1311 in the extern department.

Kitchen used as a Cow-house.

On March 21st, at Newtownstewart petty sessions, a farmer summoned a servant for leaving his work before his period of hired service was completed. The evidence showed that about Feb. 18th one of complainant's cows became sick and was brought into the kitchen, where it calved. It remained there for nine days, when it died. The milk which was sent to the creamery passed through this kitchen, and the servant actually had to sleep in this kitchen. The servant said he had not been in good health, but put up with it as long as he could. The case was dismissed, the defendant being allowed 10*s.* costs. What is the use of veterinary inspectors when such a state of affairs is tolerated?

March 26th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Struggle against Alcoholism.

ONE of the greatest scourges that afflict the human race in all countries is undoubtedly alcoholism. Every day the struggle against this plague is making greater efforts. France, unfortunately, is especially afflicted, at least in certain regions. For many years this matter has engaged the attention of all those who are interested in public health and in the preservation of the vigour of the race. All means of combating it have been sought for, and undoubtedly the best that has yet presented itself is the limitation of the number of liquor shops. Unfortunately, whenever this question comes up in the Chamber of Deputies, while everyone heartily approves of this limitation, no one dare take the responsibility of putting it to the vote, for the liquor-sellers are particularly influential in politics, so that up to now it has been practically impossible to attack or limit these places. The Chamber of Deputies, having this matter once more before them, has again adjourned the vote upon it. The National League against Alcoholism held a great protest meeting on March 17th, which drew together a large attendance, at which all shades of political opinion

were represented. Professor Debove, a former *doyen* of the Faculty of Medicine, was elected chairman. After many speakers had addressed the meeting, M. Joseph Reinach pointed out that the aim to be sought was not only the limitation of the wine-shops, but also to overcome the misery that engenders alcoholism and the insanitary dwelling and environment that favour its development. A vote of censure was passed on the Chamber of Deputies for failing to come to a decision on the matter.

The Relief of Impoverished or Sick Scientific Workers.

The Duc de Loubat, a member of the Institute, well known for his enlightened and effective pecuniary patronage of scientific work, and to whose generosity, to cite merely one example, the Faculty of Medicine of Paris owed the foundation six years ago of a chair of clinical therapeutics, has given to the Academy of Belles Lettres, of which he is a member, two blocks of securities of an annual value of 3000 francs each, to be devoted to assisting scientists, whose work is temporarily arrested through lack of means or illness.

The Grafting of Transplanted Articulations.

On March 19th M. Tuffier reported to the Academy of Medicine, with radiographic demonstrations, the cases of several patients in whom he had resected the elbow, transplanting therein a partial or total articulation. Among other cases he cited two particularly convincing ones. One patient, aged 23 years, had had an elbow-joint entirely useless from ankylosis for two years. M. Tuffier resected the ankylosis and made a new elbow with a tibio-tarsal articulation removed from the amputated limb of a woman. Now, 13 months later, the patient was making use of his transplanted articulation. In the second case, a young man, aged 21 years, had the same operation performed for serious tuberculosis of the elbow. For 14 months the result had proved perfect, the new articulation preserving both its form and its function.

Hospital Abuse.

For many years past the medical profession in France has been protesting against the ease with which patients in comfortable circumstances obtain gratuitous treatment in the hospitals, doing thus a double injury, not only to the Assistance Publique which they could pay for services, and to the really poor whom they deprive of their places in the hospital service, but also to the medical practitioners whom they thus deprive of a *clientèle* perfectly able to pay fees. Everyone is aware of it, yet in spite of that it seems very difficult to prevent this abuse. The Syndicate of French Oculists has dealt with the matter in a very effective manner. A man comfortably well off was operated on gratuitously for cataract in the ophthalmological department of a hospital. This fact becoming known to the Syndicate of Oculists, the latter made an energetic protest to the director of the hospital establishment, who, after an inquiry that fully established the patient's circumstances, with the authority of the Minister of the Interior, demanded the payment of 1000 francs damages. To avoid the prosecution with which he was threatened the patient had to pay the 1000 francs. The Minister of the Interior, recognising the wrong inflicted on the medical body, authorised the director of the hospital to pay over 500 francs to the treasury of the Syndicate of Oculists.

A Medical Committee of Aviation.

A medical committee of aviation has been formed, the honorary president of which is Dr. Reymond, a senator, who has himself made several flights in an aeroplane. Many well-known medical men are members of the committee. The secretary is M. Lepaitre. An appeal is to be issued to all French medical men.

March 25th.

A BRONZE memorial tablet to the late Dr. Leonard Strong McManus has been affixed to the wall of the Battersea Dispensary for Consumption. The inscription reads: "Leonard Strong McManus, 1857–1911. This tablet was erected by public subscription in memory of his kindness to the sick and poor and his untiring efforts to establish in Battersea a dispensary for the prevention of consumption and other forms of tuberculosis."

Obituary.

JAMES BLAKE MAURICE, M.D. ST. AND., F.R.C.S. ENG.

A VERY notable figure in the medical and social world of North Wilts passed away on Feb. 14th last, when Dr. James Blake Maurice died at Lloran House, Marlborough, the house in which he was born 72 years ago. Educated at Cheltenham College, he entered St. Mary's Hospital, London, and became M.D. St. Andrews, F.R.C.S. Eng., and L.S.A. Lond. Having declined the post of surgical registrar at St. Mary's which was offered to him, he joined his father at Marlborough in the practice which his grandfather had first established, and entered on the career which for the next 50 years was to make his name widely familiar in the locality. Over a wide area in North Wilts his opinion was soon eagerly sought, both as practitioner and as consultant. He was an excellent operator, possessing sound judgment and manual skill of a high order. A long series of successful cases of fracture of the elbow-joint treated in the flexed position without splints—a method he had learnt from his father—displayed him again as a skilled surgeon. He had great medical acumen, and was the happy possessor of a highly developed clinical instinct, which often enabled him to come to a sound conclusion as to the patient's condition, by what appeared to be hardly more than a cursory glance. He had the power of inspiring confidence in his patients, and possessed a great store of common-sense. Over and above his purely professional duties, he had many interests, being a man of affairs, with an extraordinarily wide and varied knowledge of men and things.

The medical officer of Marlborough College, Dr. Edward Penny, informs us that during the last quarter of a century, whenever difficulty or danger has arisen to the health of the school he has been accustomed to turn to Dr. Maurice for help and advice, always freely and generously placed at his disposal, "to the great advantage of himself and to the still greater advantage of the school."

For 30 years Dr. Maurice served in the Royal Wiltshire Yeomanry; for 45 years he belonged to the Marlborough corporation, being mayor four times; for 35 years he was a borough magistrate; and for 30 years a county magistrate, besides holding other important public offices. He was surgeon to the Savernake Cottage Hospital, one of the first cottage hospitals to be established in England, in the founding of which he had taken a large share. Happy in so much, Dr. Maurice was above all happy in his family life. He married the daughter of Mr. Nathaniel Kindersley, of the Indian Civil Service, who, together with 12 of his 13 children, survive him. Four of his sons are members of his own profession.

The funeral in Preshute churchyard was attended by the largest and most representative body of people who had gathered on a similar occasion in the neighbourhood within living memory.

EDWARD MASON WRENCH, M.V.O., F.R.C.S. ENG., J.P.,

CONSULTING SURGEON, WHITWORTH HOSPITAL, DARLEY; LATE SURGEON-LIEUTENANT-COLONEL (V.D.) 2ND V.B. DERBYSHIRE REGIMENT.

WE regret to record the sudden death from heart failure of Surgeon-Lieutenant-Colonel E. M. Wrench, a Crimea and Mutiny veteran, who was very well known and greatly respected in the district around Chatsworth. Mr. Wrench was born in 1834 and was the son of the Rev. T. W. Wrench, vicar of St. Michael's, Cornhill, London. He studied medicine at St. Thomas's Hospital and qualified M.R.C.S. and L.S.A. in 1854, and in the same year joined the army in the Crimea as assistant surgeon to the 34th Regiment of Foot. After hospital service at Balaclava he was on trench duty at the front, and in connexion with the attack on the Redan was mentioned in despatches for courage, coolness, and professional skill. In 1856 he was gazetted to the 12th Lancers and served with them in the Indian Mutiny, for which also he received the medal and clasp. Mr. Wrench retired from the army in 1862 and settled in practice at Baslow. He soon joined the 2nd Battalion Derbyshire Volunteers and was eventually promoted Surgeon-Lieutenant-Colonel in 1892, and received the Volunteer Decoration in 1893. He was very popular as

a medical man, and remained in active practice up to the last. He obtained the Fellowship of the Royal College of Surgeons in 1870. Mr. Wrench was friend and medical adviser to the last three Dukes of Devonshire, and attended King Edward when a visitor at Chatsworth, and was decorated by the late King with the Victorian Order. He was consulting surgeon to the Whitworth Hospital, Darley Dale, and a justice of the peace for Derbyshire. His tastes were varied and his interests wide. Latterly he was subject to heart attacks, and his death occurred whilst he was cycling home from Buxton. He leaves a wife and three sons, one of whom is in medical practice in Durham. He will be greatly missed throughout the countryside.

JAMES FRANCIS RYMER, M.R.C.S. ENG.

NEWS has lately reached England of the death on Jan. 11th at Fort Resolution, Great Slave Lake, in North-West Canada, of Mr. James Francis Rymer, who was the first fully qualified English medical man to take up residence and carry on professional work within the Arctic Circle. Studying at Guy's Hospital he qualified M.R.C.S. and L.D.S. in 1887 and obtained an American dental degree in 1892. He resided at Brighton for some years and was honorary surgeon to the Brighton, Hove, and Preston Dental Hospital and medical officer to the Carthusian monastery at Cowfold. In 1907 Mr. Rymer carried out an examination of the teeth of the children attending the elementary schools of the town, and his report called forth from Dr. Arthur Newsholme, then medical officer of health of Brighton, the following statement to the education authority: "The town of Brighton owes a debt of gratitude to Mr. Rymer for this excellent piece of work." In December, 1907, Mr. Rymer sailed for Canada and settled at Edmonton, and in the following June he set out for Fort Resolution on his journey to Fort Good Hope, a distance of 2000 miles. Mr. Rymer wrote *en route*: "I was still busy tending the poor Indians at every station; phthisis, scrofula, and other diseases being common and carrying off yearly large numbers. From Providence to the Arctic Circle these people had never seen a doctor, and I was hailed with marks of affection. My pay was in skins, there being no money in circulation in the North." It was at Fort Resolution, while attending a suffering Indian, that he passed away suddenly.

RICHARD ARTHUR PRICHARD, M.R.C.S. ENG., L.R.C.P. EDIN., J.P.

BY the death of Mr. R. Arthur Prichard, which occurred on Monday, March 11th, there was lost to Conway and the North Wales district a prominent and popular citizen. Born at Pwllheli, Mr. Prichard was educated by an uncle, and after serving articles in Portmadoc qualified in 1867 as M.R.C.S. Eng. and L.R.C.P. Edin. He settled in Conway in 1868, and soon acquired an extensive practice, while he also took a great interest in the affairs of the corporation, serving as mayor of the ancient borough of Conway on no less than six occasions. He was an ardent Freemason. In 1909 he was presented by the community with a handsome motor-car as a testimonial from Carnarvonshire, and especially from Conway, in recognition of his long and arduous public work, the extensive nature of his sympathies, and his sound judgment. He was 69 years of age at his death, and at the funeral, which took place on March 15th, all the places of business were closed during the afternoon.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Max Mandelstamm, of Kieff, who, but for his being a Jew, would have been an "ordinary" or full professor in a Russian university. Being thus disqualified, he had to content himself with a mere title as professor. He had, however, an immense practice, and was a leading spirit amongst his co-religionists of the Zionist party. He was born in the government of Kovno in 1838, and received his medical education in the Universities of Iurieff (Dorpat) and Kharkof, where he qualified in 1860. He practised for some years in Russia, but afterwards went to Germany, where he studied under von Graefe in Berlin and under Helmholtz in Heidelberg. He held an appointment as ophthalmic surgeon to a hospital in Wiesbaden, and returned to Russia in 1868, settling in the university town of Kieff, where he became head of the Ophthalmic Clinic, and was repeatedly elected to the chair, but his election was barred by his religious persuasion.—Dr. Ernst Löhlein, senior surgeon of the Lazarus Hospital, Berlin, from influenza, aged 55.—Dr. Wilhelm Doenitz, of the Berlin Institute of Infectious Diseases, aged 73. After graduating and holding various appointments in Berlin, he was appointed by the Japanese Government in 1872 to organise their newly established medical school and the sanitary department. After his return to Germany he applied himself specially to the investigation and treatment of infectious diseases under Robert Koch in Berlin. From thence he went to the institute for serum preparation at Steglitz. In 1899 he followed Brieger as chief of the infectious disease department of the institute in Berlin. Tropical hygiene has much to thank him for, as he was an accomplished entomologist. He also enriched the science of anthropology by many observations on Eastern Asiatic peoples while he was resident in Japan.—Dr. Paul Bourgeois, formerly deputy for La Vendée.—Dr. Fletcher Powell, formerly professor of pathological anatomy in the Washington University Medical School, Baltimore.

THE NATIONAL INSURANCE ACT.

THE ACTION OF THE UNIVERSITIES AND CORPORATIONS.

AT a fully attended meeting of representatives of the Medical Faculties of the English Universities, of the Royal College of Physicians of London, of the Royal College of Surgeons of England, and of the Society of Apothecaries of London, held at the Royal College of Physicians on March 21st, the following resolution was passed unanimously:—

That this conference, in which are represented the Medical Faculties of the Universities of England and Wales, the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries, recognises that there is a remarkable unanimity of opinion within the medical profession as to the attitude which its members should adopt towards the working of the National Insurance Act of 1911.

This conference desires to place on record its general approval of the principles which inspire that attitude, and while conscious that there is some difference of opinion with regard to details, expresses its willingness to support the demand that these principles should be recognised by those who are responsible for the administration of the Act before medical practitioners consent to work under it.

NATIONAL MEDICAL UNION.

The National Medical Union held a general meeting in Manchester on March 26th. The officers of the Union and a general committee were elected. The general committee subsequently elected an executive which has to report to the general committee once a month, and the general committee will report to the Union at least once in three months. The Union is the outcome of the mass meetings held in Manchester last November and December, and the policy then enunciated was unanimously reaffirmed at the meeting.

A resolution was passed to further support the members of the British Medical Association in their determination to secure the minimum demands of the profession, and approving of the action of the Representative meeting in so far as it carried out the policy of the Union; but the meeting expressed its regret that an advisory committee had been prematurely appointed and allowed to confer with the Commissioners. An instruction was given to the organising committee to influence as far as possible the elections throughout the country for the Representatives and Council of the British Medical Association by securing men who are in sympathy with the objects of the Union.

A committee of the Union is at present dealing with the subject of club and contract practice and preparing a scheme to meet this danger which will arise in the near future.

Dr. T. Arthur Helme has retired from active participation in the work of the Union on account of his health. The error that has appeared in certain quarters that he is the originator of the Union should now be corrected to prevent any misunderstanding.

Dr. Lionel J. Picton, of Holmes Chapel, read a paper on a suggested scheme of medical benefit under an Insurance

Act. The lecturer was cordially thanked for the trouble he had taken in propounding the scheme. At the close of the meeting Mr. William Coates, vice-chairman, asked all country members to become apostles of the Union.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in March the following candidates passed in the subjects indicated:—

Surgery.—W. G. Fraser (Sections I. and II.), McGill; J. Leach (Sections I. and II.), Manchester; and P. McGinnis (Sections I. and II.), Dublin.
Medicine.—H. Cox (Section I.), Birmingham; J. Leach (Sections I. and II.), Manchester, M. J. E. R. Le Dentu (Section II.), Bordeaux; G. Meyer (Section II.), Graz; and R. A. Robinson, Liverpool.
Forensic Medicine.—W. G. Fraser, McGill; and J. Leach, Manchester.
Midwifery.—W. G. Fraser, McGill; W. C. Himely, Paris; and J. Leach, Manchester.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: W. G. Fraser, J. Leach, M. J. E. R. Le Dentu, and G. Meyer.

UNIVERSITY OF LIVERPOOL.—At examinations held in March the following candidates were successful:—

DEGREES OF M.B. AND CH.B.

Second Examination.—Part A.: H. G. Bywater, B. J. Doyle, J. J. K. Pentony and R. Rimmer. Part B.: G. D. Harding and B. Williams.
Final Examination.—Part I.: Maud E. Bateman, F. A. Belam, R. W. Gemmell, A. V. Glendenning, E. B. Marsh, A. C. Mooney, and H. S. Pemberton. Part II.: D. H. Clarke and Kate M. Cowe. Part III.: Ethel M. Baker, R. C. Crooke, A. A. Dear, I. C. Edwards, T. B. Evans, N. P. Laing, J. Loudon (Second-class Honours), G. W. Mooney, H. Pierce, H. G. Roberts, and J. A. Tobin.

DEGREE OF B.D.S.

Second Examination.—Part I.: D. C. Grundy, A. E. Meeson, and W. A. Williams.—Part II.: D. C. Grundy and W. A. Williams.
Final Examination.—F. C. Wilkinson (Second-class Honours).

DIPLOMA IN DENTAL SURGERY.

Second Examination.—H. O. Sumerling, W. H. Taylor, and B. Wren.
Third Examination.—E. T. Haworth.
Final Examination.—P. G. Capon, R. N. Lee, and W. Williams.

DIPLOMA IN VETERINARY HYGIENE.

T. Craig and G. G. Howard.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bonn:* Dr. Walter Cappelle has been recognised as *privat-docent* of Surgery; Dr. Walter Friedboes as *privat-docent* of Dermatology; and Dr. Arthur Seitz as *privat-docent* of Hygiene.—*Breslau:* Dr. Paul Heinrichsdorff has been recognised as *privat-docent* of General Pathology and Pathological Anatomy.—*Clausenburg:* Dr. Desider Veszpremi, *privat-docent* of Pathological Anatomy, has been granted the title of Extraordinary Professor.—*Heidelberg:* Dr. Ludwig Arnsperger, of Carlsruhe, has been granted the title of Extraordinary Professor.—*Königsberg:* Dr. Alfred Nissle has been recognised as *privat-docent* of Bacteriology.—*Munich:* Dr. Hermann Dürck, chief of the Pathological Institute of the Isar Hospital, has been appointed by the Government of Brazil to go out and organise a Pathological Institute, and the Munich municipal authority has granted him leave of absence for that purpose. Dr. Hans Fischer has been recognised as *privat-docent* of Medicine.—*Pisa:* Dr. Giuseppe Mazza, of Modena, has been appointed to the chair of Dermatology.—*Prague (Bohemian University):* Dr. Ottokar Lescher has been recognised as *privat-docent* of Ophthalmology.—*Strasburg:* Dr. Paul Mulzer has been recognised as *privat-docent* of Dermatology; and Dr. Dold as *privat-docent* of Hygiene and Bacteriology.—*Turin:* Dr. Pietro Biardi, of Genoa, has been appointed to the chair of Ophthalmology.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on March 15th, Dr. F. de Havilland Hall being in the chair. The accounts presented showed that the business of the society was progressing favourably. The number of sickness claims received was, as usual at this time of the year, rather large, but as they are nearly all of very short duration the amount disbursed for them was not larger than is expected at this season. The committee examined the report for the year 1911. It is an excellent record and shows that the business of last year was exceptionally good, producing a considerable addition to the invested reserves. These now amount to over £250,000. Prospectuses and all further particulars may be obtained on application to Mr. F. Addiscott, secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

THE University of Glasgow proposes to confer the honorary degree of Doctor of Laws upon, among others, Sir Hector C. Cameron, emeritus professor of clinical surgery in Glasgow University, and Dr. Donald J. Mackintosh, medical superintendent of Glasgow Western Infirmary.

LIVERPOOL EDUCATION COMMITTEE.—The Liverpool education committee recently adopted a recommendation to the city council in support of a school clinic scheme for specific diseases for a year, and referred to a subcommittee a motion to report on the suggested establishment, either at Fazakerley or Allerton, of an open-air school for consumptives.

WESTERN OPHTHALMIC HOSPITAL, MARYLEBONE, W.—Mr. Reginald Carter, in presiding over the annual meeting of the supporters of this hospital, announced that the financial position was most serious. During the past three years there had been deficits amounting to £1000, and the amount owing to the bankers was close upon £3000. The committee was, however, determined to leave no stone unturned to improve matters, and begged for the coöperation of the charitable public in carrying on a work of such supreme importance. Mr. H. A. Dunn, the secretary, had resigned after 14 years' service, and the committee had invited Mr. H. W. Burleigh, secretary of the Hospital for Epilepsy and Paralysis, &c., Maida Vale, to assist them in reorganising the administration of the Western Ophthalmic Hospital, and had appointed him honorary secretary of the hospital for this purpose.

LEEDS GENERAL INFIRMARY: ANNUAL MEETING.—The 144th annual meeting of the General Infirmary at Leeds was held on March 14th, under the chairmanship of Mr. Charles Lupton, who for many years has held the position of honorary treasurer and chairman of the weekly board. There was a good attendance of the subscribers and of the general public, and Mr. Lupton's account of the work of the institution during the 12 months dealt with in the annual report was full of interest, while his expressions of hope as to future developments were encouraging to all the members of the staff, who, while proud of the position of the infirmary among the charitable and teaching institutions of the country, are none the less fully aware of the urgent need for an increase in the accommodation and for greater facilities for conducting the work of some of the departments. It was pointed out that owing to the destructive fire which occurred towards the end of 1910, a fire which put no less than 94 beds out of action, there had been great difficulty in coping with the work. Many beds had been found room for in small rooms which the force of circumstances had converted into wards, but an inevitable diminution in the number of patients treated within the walls of the infirmary had to be noted. This decrease amounted to 370, the total number of admissions being 7124 as compared with 7494 for the previous year. The total number of in-patients amounted to 7524. Though the total number of out-patients showed a slight decrease the actual number of attendances was increased by about 13,000 and amounted to 217,034. Mr. Lupton commented on the increase of the work in the X ray department and on the development of the department of bacteriology and of clinical pathology. Turning to the financial side of the report, things were not so satisfactory. The total expenditure was £3000 in excess of the total income, and had it not been for some £12,000 received in legacies the deficiency would have been by so much greater. Legacies must of necessity be an irregular source of income and could not be relied on. The subscriptions to the King Edward memorial fund amounted to £110,000, and as the original sum mentioned had been £150,000 there was still a sum of £40,000 to be collected. Mr. Lupton again took occasion to impress on those at the meeting that the original sum mentioned was a minimum without which a comprehensive scheme of reconstruction and of extension could not be carried out. He pointed out that an essential part of the scheme was the purchase of land adjoining the infirmary to admit of the necessary buildings, and he was able to say that practically all the necessary land had been acquired. As regards the reconstruction of the infirmary, that was going on steadily; ward after ward was being completely overhauled,

the sanitary arrangements and the heating and lighting being made more efficient.

UNIVERSITY OF BRISTOL: COLSTON SOCIETY.—The subscriptions in connexion with the thirteenth annual dinner of this society held last January, when Sir Arthur Quiller-Couch was principal guest and Sir Isambard Owen president, amounted to £464 10*s*. In February, 1911, the committee of the society handed £900 to the University of Bristol for the furtherance of research, and it has been decided to contribute another £450 to the same object. The society has collected almost £7000 for the encouragement of university education since its foundation in 1900.

LEWES SCHOOL CHILDREN.—The importance and value of the medical inspection of children are gradually being realised by parents in those few places where objections have been raised to attend the inspections and to take any steps to remedy the defects. Lewes, the county town of Sussex, was one of those places where the percentage of objections was high, but the figure has now dropped to 10·9 per cent. No fewer than 300 children in the schools of the town are suffering from some degree of caries of the teeth, and as the magnitude of the work has surpassed the efforts of the existing voluntary agencies a school dentist is to be appointed.

UNIVERSITY OF LIVERPOOL: RETIREMENT OF PROFESSOR DONNAN.—Much regret has been expressed at the retirement from the staff of professors at the University of Professor Donnan, who is to be congratulated upon his appointment as professor of chemistry at University College, London. Professor Donnan has held the chair of physical chemistry in Liverpool since its foundation in the year 1903. In the intervening period he has published the results of researches which have made his name so well known in the field of science; he has received the Fellowship of the Royal Society, and is very popular with his colleagues and his students. The appointment of a successor will be a matter of great responsibility to the Council of the University. As the successor to Sir William Ramsay at University College, Professor Donnan succeeds to a great tradition which, it is felt in Liverpool, he will worthily uphold.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN (UNIVERSITY OF LONDON).—The council has received the sum of £1500 from an anonymous donor to clear off the debt upon the building. It has also received from Mr. H. M. Phipson the sum of £100 to endow a prize in pharmacology in memory, and to bear the name, of the late Dr. Edith Pechey Phipson. The Gilchrist studentship for women of £100 has been awarded by the University of London to Miss Cicely M. Peake, M.B., B.S. Lond., a former student of the school. The St. Dunstan's Medical Exhibition, value £60 per annum for three or five years, and the School Scholarship, value £30, will be awarded on the result of an examination to be held on May 28th and following days. Forms of entry must be sent to the secretary of the school, from whom all particulars can be obtained, before May 20th.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A special meeting of this society will be held, to consider the subject of Rheumatoid Arthritis, on Friday, April 12th, at 8 P.M., at the West London Hospital, W. The following is to be the programme of arrangements: From 8 to 9 P.M. there will be an exhibition of—1. Cases, illustrating (i.) causation, (ii.) joint lesions, (iii.) trophic lesions, (iv.) skin affections, (v.) eye affections, (vi.) diagnosis from—(*a*) tuberculous joints, (*b*) neuropathic joints, (*c*) osteo-arthritic conditions, (*d*) gonococcal arthritis, (*e*) syphilitic arthritis. 2. Skiagrams, illustrating (i.) changes in cartilage, (ii.) changes in bone, and (iii.) deformity. 3 Museum specimens, illustrating (i.) lesions of cartilage, (ii.) lesions of bone, and (iii.) lesions of soft tissue. 4. Bacteria, illustrating (i.) oral sepsis, (ii.) alimentary infection, and (iii.) genital infection. From 9 to 9.45 P.M. there will be short papers and demonstrations, and from 9.45 to 10.30 P.M. a general discussion. The following, among others, have promised to take part in the proceedings: The President (Mr. W. McAdam Eccles), Dr. F. J. Poynton, Dr. T. J. Horder, Dr. Reginald Morton, Mr. Lloyd Williams, Mr. W. J. Midelton, Dr. Bernstein, and Dr. F. S. Palmer. Members and visitors are invited to attend at 8 P.M., as the time for exhibition of cases, &c., is limited.

Parliamentary Intelligence.

Inebriates Bill.

THE terms of the Inebriates Bill recently introduced in the House of Commons by Mr. ELLIS GRIFFITH, supported by the Home Secretary, have been published. The object of the Bill is to consolidate and amend the law relating to inebriates. Part I. deals with provisions as to inebriates not guilty of offences, and includes clauses relating to voluntary submission to restrictions, compulsory orders of committal to retreats, and provisions as to retreats. Part II. is concerned with provisions as to inebriates guilty of offences. This covers the punishment of offences by inebriates and inebriate reformatories. Part III. is general.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 20TH.

Deaths from Uncertified Causes.

Mr. GEORGE GREENWOOD asked the President of the Local Government Board to state the number of deaths of which the causes were not certified in England and Wales in each of the five years 1907 to 1911, inclusive.—Mr. BURNS wrote in reply: The numbers of deaths from uncertified causes are as follows: 1907, 7596; 1908, 7477; 1909, 7021; 1910, 6658; 1911 (provisional), 6666. The term "uncertified cause" here signifies a cause of death not certified either by a registered medical practitioner or by a coroner after inquest.

Vaccination and Small-pox.

Mr. COURTHOPE asked the President of the Local Government Board whether he had received communications from boards of guardians with reference to the danger to the community of an outbreak of small-pox, owing to the increasing tendency of parents to procure exemption from vaccination for their children; and what steps he proposed to take in the matter.—Mr. BURNS furnished the following written reply: The guardians of the Wirral union passed a resolution expressing the view indicated in the question, and sent a copy of the resolution to the other boards of guardians in England and Wales. About 80 of the other boards, some 650 in number, have informed me that they have passed a similar resolution. I do not at present think it necessary to take any steps in the matter.

The Headquarters of London University.

Sir PHILIP MAGNUS asked the Prime Minister whether the Government had appointed a trustee or trustees in connexion with the proposal for providing a site in Bloomsbury for the headquarters of the University of London, and whether the Senate of the University had been informed of the proposal and had expressed any opinion thereon.—Mr. ASQUITH replied: The Government have not appointed a trustee or trustees for the purposes described. A body of trustees is, however, being constituted, one of whom is a member of the Government, to receive gifts offered in connexion with the recommendations of the fourth report of the Royal Commission on University Education in London. A generous gift has been made on condition that a particular site is acquired. The question of its suitability is one affecting the future organisation of the University, a matter on which the Senate has found itself unable to offer any evidence to the Royal Commission.

Sir PHILIP MAGNUS: May I ask the right honourable gentleman to answer the last part of my question?—Mr. ASQUITH: I said that the Senate has found itself unable to offer any evidence to the Royal Commission.

Sir PHILIP MAGNUS: May I take it that the Senate has not been consulted?—Mr. ASQUITH: The honourable gentleman must draw his own conclusions.

THURSDAY, MARCH 21ST.

Inspectors of Boarded-out Children in Ireland.

Mr. BIRRELL (Chief Secretary to the Lord Lieutenant for Ireland), in replying to a question put by Captain CRAIG respecting the religion of the inspectors of boarded-out children in Ireland, said that a lady inspector had been recently appointed an Insurance Commissioner. The Local Government Board for Ireland were anxious for many reasons that this vacancy should be filled by a fully qualified lady doctor, but neither of the Protestant lady doctors who were candidates considered that the salary offered was sufficient to induce them to accept the position.

Registration of Apothecaries' Assistants.

Captain CRAIG asked the Secretary of State for the Home Department whether, in view of the date of the National Insurance Act coming into force, he would state what steps had been taken in conjunction with the Pharmaceutical Society to frame by-laws under Clause 4 (b) of the Pharmacy Act, 1908, for the registration of Army compounders and apothecaries' assistants as chemists.—Mr. MACKENNA answered: I am informed that the Pharmaceutical Society is in communication with the War Office as regards qualified military dispensers and that the question of certified assistants to apothecaries is also receiving the Society's active consideration.

The Report of the Vivisection Commission.

Dr. CHAPPLE asked the Secretary of State for the Home Department whether he would give the cost of the Commission on Vivisection; and whether he would consider the advisability, in future reports, of abstracts of evidence giving the substance only instead of verbatim reports of question and answer being printed, and of the whole being done up in octavo size and book form.—Mr. MCKENNA replied: The expenditure has amounted to about £5674. I fear that mere abstracts of the evidence would not have satisfied the persons and societies who are keenly interested in the subject of vivisection. The question of printing reports is mainly one for the Stationery Office, but I may point out that the number of volumes would be greatly increased if the use of the existing double-columned foolscap page were discontinued.

The Adulteration of Flour.

Sir JOHN LONSDALE asked the President of the Local Government Board whether, having regard to the practice which prevailed of adulterating flour by the addition of various deleterious substances in the process of manufacture, he would direct the special attention of the responsible authorities to the provisions of Section 3 of the Sale of Food and Drugs Act, 1875, with a view to the prosecution of offenders.—Mr. BURNS said, in reply: The question of the adulteration of flour is now under consideration, and I am not at present in a position to state what steps will be taken. The publication of the answer which was recently given to the honourable Member will have drawn attention to the section referred to.

Sir JOHN LONSDALE: The right honourable gentleman has had the matter under consideration fully 12 months.—Mr. BURNS: No longer than is necessary.

Sir JOHN LONSDALE: How much longer will the right honourable gentleman require? I do not wish an evasive answer.

The SPEAKER: No doubt the right honourable gentleman has given the best answer he can.

MONDAY, MARCH 25TH.

Medical Treatment of School Children.

Mr. HAYES FISHER asked the President of the Board of Education whether the sum of £60,000, included in the estimates of the Board of Education under the head of grants towards the expenses of local authorities in respect of medical treatment of school children and services ancillary thereto, represented the full extent of the grant to be given in the year 1912-13 towards the expenses incurred by local authorities in England and Wales for medical inspection and treatment of school children; whether it was proposed to limit the assistance given by the imperial Exchequer to the optional service of medical treatment, leaving local authorities to bear the whole of the compulsory burden of medical inspection; whether he was now prepared to indicate the basis on which the new grant would be distributed; and whether, in allocating the grant, he would take into account the money already expended by a local authority.—Mr. PEASE replied: The answer to the first part of the question is in the affirmative, but the amount to be made ultimately available for the purposes referred to will be considerably in excess of the sum provided in the estimates for the year 1912-13. The answer to the second part of the question is also in the affirmative. In answer to the third part of the question, I hope to be able to issue in a few days' time the regulations under which the grant will be paid, and an explanatory circular. With regard to the last part of the question, in allocating the grant the expenditure of the local education authorities during the previous year will be taken into account.

Medical Benefits.

Mr. CASSEL asked the Secretary to the Treasury when a member of an approved society attained the age of 70 and ceased to pay contributions, would the society still be liable to make the same payments or any payments in respect of such member to the Insurance Committee to provide medical benefits; if not, from what source would the doctor and chemist be paid for medical benefit for such member.—Mr. MASTERMAN answered: The payments made by an approved society to an Insurance Committee for medical benefit will be made on account of all the members of a society and not of any particular member. They will be paid out of the funds of the society as built up by the contributions made in respect of all the members and the reserves accumulated in respect of them.

Preservatives in Cream.

Mr. STANIER asked the President of the Local Government Board whether he would consent to such modifications in the draft regulations for the restriction of the use of preservatives in cream as to provide that the labelling proposals in the regulations could be so modified as to be made commercially workable.—Mr. BURNS answered: The Local Government Board are prepared to receive and consider any representations concerning the proposals in the draft regulations.

Mr. STANIER further asked the right honourable gentleman whether he could see his way to delay the operation of the proposed draft regulations as to preservatives in cream for a month, in order that opportunity might be given to the interested persons to discuss such modifications of the regulations as would enable them to be carried into effect without detriment to the supply to the public of the articles referred to in the regulations.—Mr. BURNS said, in reply: Under the Rules Publication Act, 1893, the Board is required to consider any representations or suggestions which are made in writing by any public body interested before the order is finally settled. Notice of the intention to make regulations was published in the *London Gazette* of Feb. 20th, and the statutory period for the making of such representations or suggestions is 40 days from that date.

TUESDAY, MARCH 26TH.

The Sanitary Commissioner to the Government of India.

Mr. HOGGE asked the Under Secretary of State for India whether there was any intention to appoint a separate Sanitary Commissioner to the Government of India, or whether it was intended to continue the temporary arrangement whereby the Director-General of the Medical Service was at present doing the work in addition to his own.—Mr. MONTAGU answered: The reply to the first question is in the affirmative. Certain questions regarding the functions and position of the Sanitary Commissioner are under consideration. As soon as they are decided the appointment will be made.

The Definition of Vinegar.

Mr. CHARLES BATHURST asked the President of the Local Government Board whether there was in his department any definition or standard of vinegar, based either upon the substances from which it was manufactured or upon the percentage of acetic acid which it contained; and whether, in the absence of a due percentage of the above acid, prosecutions of its vendors under the Food and Drugs Act were authorised by the Board.—Mr. BURNS replied: There is no statutory definition of vinegar for the purposes of the Sale of Food and Drugs Acts, but, in view of the numerous representations made to it on the subject, the Board stated its views as to the proper significance of the terms "vinegar," "malt vinegar," and "artificial vinegar" in a letter addressed to the secretary of the London and County Vinegar Brewers' Association on Dec. 15th last. The Board has no power to authorise prosecutions under the Sale of Food and Drugs Acts.

Workmen's Medical Funds.

Mr. RICHARDS asked the Secretary to the Treasury whether he had received an application from the workmen's medical funds of Monmouthshire that a representative acquainted with workmen's medical funds should be appointed upon the advisory board of the National Insurance Act Commissioners; and whether he proposed to grant such representation.—Mr. MASTERMAN wrote in reply: The answer to both parts of the question is in the affirmative.

WEDNESDAY, MARCH 27TH.

The Adulteration of Flour.

Sir JOHN LONSDALE asked the President of the Local Government Board whether, having regard to the fact that it had been established by departmental investigation that the adulteration of flour by the addition of various deleterious substances was largely practised by millers, and the matter had been under his consideration for more than a year, he could now state when he expected to be in a position to announce the steps to be taken to put a stop to this practice in the public interests.—Mr. BURNS said in reply: I have received a number of deputations on this subject since the reports were issued from my Foods Department last year, and the matter has been carefully considered by my expert advisers from all points of view. As a result, I have come to the conclusion that in some respects the matter can be adequately dealt with by the ordinary law against adulteration. I am, however, still considering whether it may not be possible to deal with some of the practices to which the honourable baronet refers by regulations under the Public Health (Regulations as to Food) Act, 1907.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND COMPANY, LIMITED, Ruskin House, 44 and 45, Rathbone-place, London, W.

Is the Mind a Coherer. By L. G. Sarjant. Price 6*s.* net.

The Drama of Love and Death. A Study of Human Evolution and Transfiguration. By Edward Carpenter, Author of "The Art of Creation," "Towards Democracy," &c. Price 5*s.* net.

ARNOLD, EDWARD, London. (LONGMANS, GREEN, AND CO., New York.)

International Medical Monographs. General Editors: Leonard Hill, M.B., F.R.S., and William Bulloch, M.D. Caisson Sickness and the Physiology of Work in Compressed Air. By Leonard Hill, M.B., F.R.S. Price 10*s.* 6*d.* net.

BAILLIÈRE, TINDALL, AND COX, London.

A Surgical Treatment of Locomotor Ataxia. By L. N. Denslow, M.D., Fellow, New York Academy of Medicine; late Physician, Diseases of the Skin (Out-patients), Bellevue Hospital, New York; late Professor, Genito-urinary Surgery and Venereal Diseases, St. Paul Medical College, Minnesota. Price 3*s.* 6*d.* net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

On Gastroscopy: With a Description of a New, Easy, and Efficient Method of Œsophago-Gastroscopy, combining Direct and Indirect Vision; and a Plea for its Employment by Gastric Experts. By William Hill, B.Sc., M.D. Lond., Surgeon for Diseases of the Throat, Nose, and Ear, St. Mary's Hospital, London. Vice-President of the Laryngological Section of the Royal Society of Medicine. Price 3*s.* 6*d.* net.

BELL, G., AND SONS, LIMITED, London.

Psyche and Other Poems. By Augustus H. Cook, M.B. Lond., late Senior Surgeon, Hampstead General Hospital, Fellow of the Royal Society of Medicine. Price 2*s.* 6*d.* net.

BLAKISTON'S SON (P.) AND CO., Philadelphia. (H. K. LEWIS, London.)

Honan's Handbook to Medical Europe. A Ready Reference Book to the Universities, Hospitals, Clinics, Laboratories, and General Medical Work of the Principal Cities of Europe. By James Henry Honan, M.D., Rush Medical College (University of Chicago), M.D., Imperial Frederich Wilhelm University of Berlin; Honorary President and formerly Active President of the Anglo-American Medical Association in Berlin. With Maps of Berlin, Edinburgh, London, and Paris. Price 6*s.* net.

DOUGHERTY, J. T., New York. (H. K. LEWIS, London.)

On the Physiology of the Semi-Circular Canals and their Relation to Seasickness. By Joseph Byrne, A.M., M.D., LL.B. Price 12*s.* 6*d.* net.

EWART, SEYMOUR, AND CO., LIMITED, 12, Burleigh-street, London, W.C.

My System. 15 Minutes' Work a Day for Health's Sake. By J. Müller, Ex-Lieutenant of Engineers in the Danish Army. With Cinematograph Illustrations and a Time Table. Specially revised by the Author and translated by G. M. Fox-Davies and H. R. Murray. Price 2*s.* 6*d.* net.

JACK, T. C. AND E. C., 67, Long Acre, London, W.C.; and Edinburgh.

Cooking for Invalids in Home and Hospital. By Florence B. Jack. A new edition, revised and enlarged. Price 2*s.* net.

KNIGHT, CHARLES, AND CO., LIMITED, 227-239, Tooley-street, London, S.E.

The Housing, Town Planning, &c., Act, 1909 (9 Edw. VII. Ch. 44), with Incorporated Provisions of the Housing Acts, and all Orders issued by the Local Government Board, together with full Explanatory Notes and Index. Third Edition. By William A. Casson, Barrister-at-Law of the South-Eastern Circuit, Author of "Annotated Model Bye-laws" (7th Edition), the "Education Act, 1902," and other works. Price not stated.

LANCET-CLINIC (THE) PUBLISHING COMPANY, Cincinnati, Ohio, U.S.A.

The Friends of the Insane, the Soul of Medical Education, and other Essays. By Bayard Holmes, M.D., Chicago. Price, cloth, $1.00.

LEWIS, H. K., London.

The Care of Infants and Young Children in Health. By Mildred M. Burgess, M.D. Lond. Second edition. Price 1*s.* net.

MACMILLAN COMPANY, THE, New York. (MACMILLAN AND CO., LIMITED, London.)

Principles of Human Nutrition. A Study in Practical Dietetics. By Whitman H. Jordan, Director of the New York Agricultural

Experiment Station; author of "The Feeding of Animals." Price 7s. 6d. net.

Deformities, including Diseases of the Bones and Joints. A Text-book of Orthopædic Surgery. By A. H. Tubby, M.S. Lond., F.R.C.S. Eng., Surgeon to, and in Charge of, the Orthopædic Department, Westminster Hospital, and Lecturer on Clinical and Orthopædic Surgery in the Medical School. Second edition. In two volumes. Price 45s. net.

MACMILLAN AND CO., LIMITED, London.

Spices. By Henry N. Ridley, M.A., C.M.G., F.R.S., F.L.S., Director of Botanic Gardens, Straits Settlements. Price 8s. 6d. net.

Milk and the Public Health. By William G. Savage, B.Sc., M.D. Lond., D.P.H., County Medical Officer of Health, Somerset; late Medical Officer of Health and Public Analyst, Colchester. Price 10s. net.

MCDOUGALL'S EDUCATIONAL COMPANY, LIMITED, 8, Farringdon-avenue, London, E.C., and Edinburgh.

Talks on Health and Temperance. Price 7d. net.

METHUEN AND CO., LIMITED, 36, Essex-street, London, W.C.

Bacteria as Friends and Foes of the Dairy Farmer. By Wilfrid Sadler, Lecturer on Theory of Dairying, Assistant Instructor in Dairying, Demonstrator in Dairy Bacteriology, the Midland Agricultural and Dairy College, Kingston, Derby. Price 1s. 6d.

MOSBY (C. V.) COMPANY, St. Louis, U.S.A. (KEENER, GEORGE, AND COMPANY, 16A, Red Lion-square, London, W.C.)

Practical Electro-therapeutics and X-Ray Therapy. With Chapters on Phototherapy, X-Ray in Eye Surgery, X-Ray in Dentistry, and Medico-legal Aspect of the X-Ray. By J. M. Martin, M.D., Professor of Electro-therapeutics and X-Ray Methods in the Medical Department of Baylor University, in the Medical Department of Southwestern University, and in the State Dental College, Dallas, Tex. Price 18s. net.

ROUTLEDGE, GEORGE, AND SONS, LIMITED, London. (DUTTON, E. P., AND CO., New York.)

Nursery Rhymes. Illustrated by F. M. Wildish. Price 3s. 6d.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

A Handbook of Practical Treatment. By Many Writers. Edited by John H. Musser, M.D., LL.D., Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia; and A. O. J. Kelly, A.M., M.D., late Assistant Professor of Medicine in the University of Pennsylvania, Philadelphia. Volume III. Price 75s. net per set of three volumes.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

Men and Measures. A History of Weights and Measures, Ancient and Modern. By Edward Nicholson, F.I.C., F.C.S., Surgeon-Lieutenant-Colonel, Army Medical Department, Author of "A Manual of Indian Ophiology," "The Story of Our Weights and Measures," "Floureto de Prouvençe," &c. Price 7s. 6d. net.

THIEME, GEORG, Leipzig.

Zwei Jahre Salvarsantherapie. Herausgegeben von P. Ehrlich, F. Kraus, A. v. Wassermann. Redaktion: Fr. Keysser. Sonderabdruck aus der Zeitschrift für Chemotherapie und Verwandte Gebiete. Price not stated.

TORCH PRESS, THE, Cedar Rapids, Iowa, U.S.A.

A Manual of Poisonous Plants. Chiefly of Eastern North America, with Brief Notes on Economic and Medicinal Plants and Numerous Illustrations. By L. H. Pammel, Ph.D., Professor of Botany, Iowa State College Agriculture and Mechanic Arts. Price $7.50 net.

WILEY, JOHN, AND SONS, New York. (CHAPMAN AND HALL, LIMITED, London.)

The Orientation of Buildings or Planning for Sunlight. By William Atkinson, Fellow of the Boston Society of Architects. First Edition. First Thousand. Price, cloth, $2.00 net (8s. 6d. net).

WITHERBY AND CO., 326, High Holborn, London, W.C.

Filariasis and Elephantiasis in Fiji. Being a Report to the London School of Tropical Medicine. By P. H. Bahr, M.A., M.B., B.C., D.T.M. & H. Cantab., M.R.C.S. Eng., L.R.C.P. Lond. With many Coloured and Monochrome Plates, Numerous Charts and a Map. (Supplement No. 1 of the Journal of the London School of Tropical Medicine.) Price 6s. net.

YEAR-BOOK PRESS, THE, 31, Museum-street, London, W.C.

The Public Schools Year-Book. The Official Book of Reference of the Headmasters' Conference. Twenty-third Year of Publication. 1912. Edited by H. F. W. Deane, M.A., F.S.A., Trin. Coll. Camb., Librarian to the Dean and Canons of St. George's, Windsor Castle, and W. A. Evans, M.A., of the Inner Temple, Barrister-at-Law, Secretary to the Headmasters' Conference. Price 3s. 6d. net.

The Schoolmasters' Year-book and Directory, 1912. Price 12s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ADAM, THOMAS, M.D. Glasg., has been appointed Medical Officer of Health of Stirlingshire.

BERRIDGE, W. R. M., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Narborough District of the county of Leicester.

CAMPBELL, ROBERT, F.R.C.S. Eng., has been appointed Surgeon to the Royal Victoria Hospital, Belfast.

CARR, T. E. ASHDOWN, M.B., B.S. Lond., has been appointed Ophthalmic Surgeon to the Derbyshire County Council (Education Committee).

DOWZER, T., L.R.C.P. & S. Irel., has been appointed Casualty House Surgeon at the Radcliffe Infirmary and County Hospital, Oxford.

JOLL, C. A., F.R.C.S. Eng., M.B., M.S. Lond., has been appointed Senior Resident Medical Officer at the Royal Free Hospital.

MOSS, B. W., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Lutterworth District of the county of Leicester.

PIERREPONT, E. SPENCER, L.D.S. R.C.S. Eng., has been appointed Dental Surgeon to the Prince of Wales's General Hospital, Tottenham, N.

STEVENSON, HOWARD, F.R.C.S. Irel., has been appointed Assistant Surgeon to the Royal Victoria Hospital, Belfast.

WALSHAM, HUGH, M.D. Cantab., F.R.C.P. Lond., has been appointed Consulting Physician to the X Ray Department of the Eltham and Mottingham Cottage Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN, KINGSEAT ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, &c.

AGRA, UNITED PROVINCES, INDIA, DUFFERIN HOSPITALS AND FEMALE MEDICAL SCHOOL.—Female Senior Doctor. Salary £26 13s. 4d. per mensem, with free quarters.

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing. Each for six months.

AYR DISTRICT ASYLUM.—Junior Assistant Physician. Salary £140 per annum, with board, lodging, and laundry.

BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Salary at rate of £25 each per quarter, with apartments, board, and washing.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Second and Third House Surgeons. Salaries £80 and £75 per annum respectively, with board, rooms, and laundry.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant. Salary at rate of 52 guineas per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House Surgeon. Salary £75 per annum, with board and residence.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRENTWOOD, ESSEX COUNTY ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, &c.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—Resident Medical Officer, unmarried. Salary £160 per annum, with rooms, coals, gas, and attendance.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £80 per annum, with board and residence.

BRISTOL GENERAL HOSPITAL.—House Physician for six months. Salary £80 per annum, with board, residence, &c.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Pathologist. Salary at rate of £250 per annum.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £150 per annum, with apartments.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Honorary Assistant Surgeon.

CHELTENHAM GENERAL HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per annum, with residence and maintenance.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—House Physician. Salary £90 per annum, with rooms, board, washing, and attendance.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon, unmarried. Salary £120 per annum, with board, lodging, and laundry.

DERBYSHIRE EDUCATION COMMITTEE.—Third Assistant School Medical Officer. Salary £250 per annum.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians and Two House Surgeons, each for six months. Salary £50 per annum, with board, residence, and washing. Also Medical Registrar. Also Assistant Physician for Diseases of the Skin.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, attendance, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Medical Officer to the Casualty Department for six months. Salary at rate of £100 per annum, with luncheon and tea.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.

HUNTINGDON COUNTY HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board, &c.

INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £100 per annum, with board, &c.

IPSWICH BOROUGH.—Assistant Medical Officer of Health. Salary £250 per annum.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Harl's Court, S.W.—Physician.

LEEDS CITY INFECTIOUS DISEASES HOSPITALS AND SANATORIUM.—Two Medical Assistants, unmarried, for six and three months respectively. Salary at rate of £110 per annum, with board, lodging, and washing.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and lodging.

LEICESTER INFIRMARY.—Assistant House Physician for six months. Salary at rate of £80 per annum, with board, apartments, and washing. Also Honorary Assistant Physician.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL, STANLEY HOSPITAL.—Honorary Physician and Honorary Laryngologist.

LIVERPOOL UNIVERSITY.—Chair of Pathology. Salary £500 per annum.

LONDON HOSPITAL, Whitechapel, E.—Clinical Assistant in the Aural Out-patient Department. Salary £100 per annum.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £120 per annum, with rooms, attendance, board, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury. OUT-PATIENTS' DEPARTMENT, Cartside-street.—Honorary Dental Surgeon.

METROPOLITAN BOROUGH OF STEPNEY.—Assistant Medical Officer of Health. Salary £300 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Pathologist and Registrar. Salary at rate of £120 per annum. Also Assistant Physician.

MIDDLESEX HOSPITAL.—Medical Registrar.

MULLINGAR DISTRICT LUNATIC ASYLUM.—Resident Medical Superintendent. Salary £400 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £60 per annum, with board, residence, and laundry.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Senior House Physician, Junior House Surgeon, and Junior House Physician for six months. Salary of former £75 and of two latter £50 per annum, with residence, board, and laundry.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Physician to Out-patients.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, N.E.—House Surgeon. Also House Physician. Each for six months. Salary in each case at rate of £80 per annum, with board, residence, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Assistant Dental Surgeon.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Male House Physician and House Surgeon for six months. Also Female House Physician and Female House Surgeon. Also Female Senior Obstetric Assistant. Salary £50 per annum. Also Female Junior Obstetric Assistant. Board, lodging, and washing provided in each case.

ST. JOHN'S WOOD AND PORTLAND TOWN DISPENSARY, 96, St. John's Wood-terrace, N.W.—Third Medical Officer.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £65 per annum, with board and residence.

SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £60 per annum.

SHREWSBURY, SALOP INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

SINGAPORE MUNICIPALITY INFECTIOUS DISEASES HOSPITAL, STRAITS SETTLEMENTS.—Resident Medical Officer. Salary £400 per annum, with free quarters.

SLEAFORD, LINCOLNSHIRE, KESTEVEN COUNTY ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, &c.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Physician. Salary £32 per annum, with board, residence, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SUNDERLAND CHILDREN'S HOSPITAL.—Resident Medical Officer for six months. Salary £80 per annum, with board, residence, and laundry.

SUNDERLAND ROYAL INFIRMARY.—Two Junior House Surgeons and House Physician for six months. Salary £80 per annum in each case, with board, residence, and laundry.

TEIGNMOUTH HOSPITAL, S. DEVON.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

WAKEFIELD, WEST RIDING ASYLUM.—Locum Tenens Assistant Medical Officer. Salary £4 4s. per week, with apartments and board.

WALSALL AND DISTRICT HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, residence, and laundry.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Pathologist. Salary £150 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, rooms, and laundry.

YORK COUNTY HOSPITAL.—House Physician for six months. Salary at rate of £100 per annum, with board, residence, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Braemar, in the county of Aberdeenshire; at Donoghmore, in the county of Down; and at Kilbeggan, in the county of Westmeath.

Births, Marriages, and Deaths.

BIRTHS.

GREENE.—On March 23rd, at Crossbrook-street, Cheshunt, the wife of W. A. Greene, M.R.C.S., of a son.

LIONEL SMITH.—On March 20th, at Neville Court, N.W., the wife of A. Lionel Smith, M.B., of a son.

NESHAM.—On March 17th, at Ellison-place, Newcastle-on-Tyne, the wife of R. A. Nesham, M.R.C.S., of a son.

SHAW.—At Healesville, Victoria, Australia, the wife of A. Eland Shaw, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

SMITH—BLACKSTONE.—On March 27th, George William Smith, M.B., Ch.B. Edin., to Sylvia Rose Margaret Blackstone, M.B., B.S.

DEATHS.

BAILLIE.—On March 20th, at Acacia-road, St. John's Wood, Robert Alexander Baillie, M.R.C.S., L.R.C.P.

RUSHER.—On March 22nd, James Benjamin Rusher, of Pershore, aged 61.

SATCHELL.—On March 20th, at Ascott-avenue, Ealing, W., Walter A. Satchell, J.P., F.R.C.P. Edin., M.R.C.S. Eng., in his 73rd year, after three days' illness.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH IN BASUTOLAND.

A REPORT from the Acting Resident Commissioner of Basutoland, South Africa, on the annual Blue Book for the territory for the year ending June 30th, 1911, has been received at the Colonial Office and presented to Parliament. It states, *inter alia*, that the population, as ascertained by a Census taken in April and May last, amounted to 402,434—183,241 males and 219,193 females. The general health of the territory has been good and no epidemics of any importance have occurred. Small-pox broke out in the Quthing district, but was confined to one village. The infection was traced to the Cape Province, and steps were immediately taken to secure vaccination of those leaving the country, certificates of vaccination being demanded of those requiring passes. The important subject of leprosy has been under consideration during the past year. Suggestions for the establishment of a leper settlement were laid before a meeting of the Basutoland council; they were most favourably received, and have been generally approved by the High Commissioner for South Africa (Viscount Gladstone). The selection of a suitable site will perhaps prove difficult, but it is hoped that the question will be satisfactorily settled before long. The number of patients treated during the year in the Government hospitals and dispensaries showed a considerable increase over the previous year. The in-patients numbered 1732 and the out-patients 43,961. Of the latter 9500 attended at the dispensaries more than once. During the year the principal medical officer made a tour of inspection of the hospitals and dispensaries throughout the territory, and reported very favourably on the work done, both as regards quantity and efficiency. A small hospital has been opened at Quthing and has been much appreciated in the district.

GIVING WAY.

MR. HAMILTON SPRATT, who describes himself on his card as a "surgical chiropodist," has been good enough to ask our advice in a delicate professional matter occurring in his practice. He says: "I have a patient who has a split thumb-nail which won't give way to every treatment I have tried. Could someone in your medical staff advise me what to do? I enclose my card." Perhaps the nail would give way if the surgical chiropodist gave way to a medical manicurist.

DEATH FROM SEA-SICKNESS.

AN inquest was held at Newhaven on March 25th on the body of M. Constant Lecamp, a director of the Crédit Industriel de Paris, who died on a cross-Channel boat between Dieppe and Newhaven. He was accompanying his daughter to Brighton, but experiencing a very rough passage suffered severely from sea-sickness. This brought on cardiac failure, death occurring before harbour was reached. There was no medical man aboard the vessel at the time. M. Lecamp, it was stated in evidence, had been attended at home for heart affection.

THE WOMEN'S IMPERIAL HEALTH ASSOCIATION.

THE second annual report of this association for 1911 lies before us. Information concerning the association was given in our columns of March 9th, p. 701. The present report clearly indicates the excellent progress made during the past year. The Florence Nightingale and Aurora Caravans "trekked through the villages, the lecturer giving talks, cinematograph shows, and distributing leaflets, while at intervals of about a fortnight a lecturer came from London to speak in the larger towns included in the tour." A caravan was present at the Festival of Empire, and one also made a tour of the London parks, visiting each of them several times. The association has taken a house in the Kennington-road on lease for its school for mothers. A fête was held in the Royal Botanic Gardens, Regent's Park, on July 5th, under the immediate patronage of the Duke and Duchess of Argyll, Prince Alexander of Teck, and other distinguished persons. The association is agitating for free lavatory accommodation for women. The report contains also much useful hygienic information and household hints. The address of the association is 7, Hanover-square, London, W.

THE LITTLE MOTHER'S SCHOOL.

THE Little Mother's School is an institution established by the Chicago Department of Health. In 31 schools, situated in different parts of the city, a class is held once a week for young girls, where all subjects pertaining to the care and rearing of children are taught. These pupils learn of ventilation and nursery hygiene—how babies should be bathed, dressed, and fed, and how they should be cared for in their sleep. The teaching is given in the simplest terms possible, and the pupils, who already number more than 1000, have certain

opportunities of putting what they have learnt into actual practice. Two nurses are present at each class—one to speak, the other to demonstrate—and pupils are encouraged to bring materials so as to make babies' clothes at the class. The work is all under the direction of the supervising nurses of the Board of Health, School Hygiene Division. The teachers have to attend twice a week at the department headquarters so that they may themselves be taught. Already an examination has been held and the pupils have been called upon to write papers describing the instruction they have received. The following is claimed to be not an exceptional but a fair sample of the papers written by the "Little Mothers." The author is a girl, 14 years old, and she writes:—

"Health is the condition free from pain, and normal condition of the body. No one can be healthy who does not keep himself clean. Hygiene is the science of health, and to have healthy people we must begin with the baby. Before we bath the baby we should have all the things ready. Then see if the water is not too warm. We try it by putting our elbow in; if we can stand it, it's all right for baby. Then we put towels so the baby's body does not touch the bottom of the bath tub. First of all, we wash its head and hands, then its eyes with a different piece of cotton for each eye, then its feet and body. After we have washed it well, then we take the baby out, and put him on the blankets. We dry it by patting gently, not rubbing roughly."

Apparently the lessons given consist of a counsel of perfection. Very few babies are bathed in this country with such minute care and luxurious provision of blankets and linen. Many British mothers would be more than surprised if called upon to use a fresh and separate piece of wool to wipe each of the baby's eyes. Nevertheless, having undertaken the task of teaching young girls what will be their duties as mothers, it is wise to advise the best methods. This, in any case, leaves a wider margin for those compromises that inevitably take place in the hurry of daily life between the ideal and what is conveniently practical. A somewhat meticulous course of instruction includes the teaching of how to sing a lullaby.

A NOISE-SILENCER.

Sir Ronald Ross has directed our attention to an invention called an earclip, which he made more than 20 years ago for a patient who was very susceptible to slight noises. He has now put the invention on the market with the object of helping medical men in the treatment of patients susceptible to noise. It consists of a horseshoe spring, at the ends of which are wooden studs, which press against the tragus or other part of the ears so as to close them and prevent or partly prevent noises reaching the tympanum. The springiness of the metal horseshoe allows the pressure being made greater or less as desired. The device can be worn when lying down, and it is pointed out that by its use the noises going on in hospitals, factories, offices, railway trains, and steamers, the streets of a city, or from insects in tropical climates, can be wholly or largely excluded from the auditory nerves, and the wearer can obtain comparative or complete silence, and thus be enabled to get sleep or quiet or to concentrate his thoughts on work in hand without distraction. Messrs. C. Baker, 244, High Holborn, are the manufacturers. The price of the silencer is 2*s*. 6*d*.

"*Dumpling*," a medical man, would be glad if any of our readers could, through the columns of THE LANCET, give him information concerning the pay and prospects of a lady dispenser. He wishes to know if this work provides a good opening for a girl, or whether the supply already exceeds the demand.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for March and April:—

March 23rd–April 4th (London, Royal Agricultural Hall).—International Smoke Abatement Exhibition.
April 1st and 2nd (Milan).—Italian National Convention upon the Sexual Question.
" (London).—First Congress of Pure Food and Health Society of Great Britain.
" 1st–7th (Tunis).—Twenty-second Congress of French-speaking Alienists and Neurologists.
" 8th–13th (Rome).—Seventh International Congress of Dermatology and Syphilology.
" 8th–15th (Johannesburg).—Thirteenth South African Medical Congress.
" 9th–11th (Paris).—Congress of Physiotherapy for French-speaking Physicians.
April 9th (Berlin).—Eleventh Congress of the German Society for Orthopædic Surgery.
" 9th–13th (Giessen).—Congress on Study of Families, Inheritance, and Race Hygiene.
" 10th–13th (Berlin).—Forty-first Congress of the German Surgical Society.
" 12th–30th (London, Olympia).—Ideal Homes Exhibition.
" 14th (Berlin).—Eighth Congress of the German Röntgen Society.
" 14th–20th (Rome).—Seventh International Congress on Tuberculosis.
" 15th–18th (Wiesbaden).—Twenty-ninth German Congress for Internal Medicine.
" 21st–24th (Munich).—Twenty-sixth Meeting of the Anatomical Society.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

PATHOLOGICAL SECTION (Hon. Secretaries—J. C. G. Ledingham, A. E. Boycott): at 8.30 P.M.

Laboratory Meeting at the Cancer Laboratory, Middlesex Hospital, W.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 P.M., Dr. Saubermann: The Physiological Principles of Internal Radium Therapy.—Mr. C. A. Clarke will demonstrate a Device for Viewing Wet Negatives.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Dr. G. N. Meachen: The Relationship between Some of the Commoner Skin Diseases and Systemic Disorders.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. T. C. Fox: Clinique (Skin). 5.15 P.M., Lecture:—Mr. M. Collier: Other Disorders of Impeded Respiration.
TUESDAY.—4 P.M., Dr. J. J. Perkins: Clinique (Medical). 5.15 P.M., Lecture:—Dr. N. Pitt: Adherent Pericardium.
WEDNESDAY.—4 P.M., Mr. G. E. Waugh: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. Taylor: Some Common Nervous Diseases (lantern demonstration).
THURSDAY.—4 P.M., Mr. H. A. T. Fairbank: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. V. Bonney: The Treatment of Displacement of the Uterus and Vagina.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. H. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).
TUESDAY.—Clinic: 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld).; Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Demonstration on Fevers (Dr. F. Thomson, at the North-Eastern Fever Hospital, St. Ann's-road, N.); Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

THURSDAY.—2.30 P.M., Demonstration on Fevers (Dr. F. Thomson; at the North-Eastern Fever Hospital, St. Ann's-road, N.), Gynæcological Operations (Dr. A. B. Giles: Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. R. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

LISTER INSTITUTE OF PREVENTIVE MEDICINE, Lecture Theatre of the Lister Institute, Chelsea Bridge-road, S.W.

TUESDAY.—5 P.M., Dr. W. Nicoll: Modern Aspects of Helminthology—General Morphology and Biology of the Nematodes. (Lecture V.)

SALFORD ROYAL HOSPITAL.

THURSDAY.—4.30 P.M., Mr. J. B. Macalpine: Modern Methods of Diagnosis in Urinary Surgery. (Post-Graduate Course.)

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.). Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (3rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (4th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (6th).—Royal Free (9A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 27th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 21	29·11	S.E.	0·10	97	56	38	42	43	Raining
,, 22	29·13	S.W.	0·20	82	53	43	44	45	Raining
,, 23	29·73	W.	0·05	61	46	41	41	43	Overcast
,, 24	29·64	W.	0·34	95	57	43	45	47	Cloudy
,, 25	30·03	S.W.	...	96	62	47	54	55	Overcast
,, 26	30·25	S.W.	...	103	62	51	49	53	Cloudy
,, 27	30·13	W.	...	107	60	50	49	51	Cloudy

The following journals, magazines, &c., have been received:—British Journal of Dermatology, Transactions of the Ophthalmological Society of the United Kingdom, Revue de Psychiatrie, Journal d'Urologie, Revue d'Hygiène et de Police Sanitaire, Journal of Nervous and Mental Disease, Kala-azar Bulletin, Annales de l'Institut Pasteur, Philippine Journal of Science, Transactions of the Society of Tropical Medicine and Hygiene, Archives Internationales de Neurologie, Canadian Practitioner, Interstate Medical Journal, Annales de Gynécologie et d'Obstétrique, American Journal of Orthopedic Surgery, Detroit Medical Journal, Archives of Internal Medicine.

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